

STAR

TEST REQUEST FORM

Sample/Specimen No. D-032 Cost Code/Work Order No. ED332

Requested By: Org. 80232 Person J. LINDBERG Date 1-29-90

| Test Requested | No. of Samples | Test Lab Information (Instruction Used) |
|-----------------------|----------------|---|
| <u>SIEVE ANALYSIS</u> | <u>1</u> | <u>ETAL-07</u> |
| <u>HYDROMETER</u> | <u>1</u> | <u>ETAL-07 (IF REQ)</u> |
| <u>MOISTURE</u> | <u>1</u> | <u>ETAL-14</u> |
| <u>N/A</u> | <u>N/A</u> | <u>N/A</u> |

Remarks FIELD SAMPLE
MD-12-1

Received By: R.G. ALEXANDER Date 1-18-90

Approved By: R.G. ALEXANDER Date 1-29-90



62121051

Page 1 of 1

Date 1-29-90

Date Issued 11-15-69

DATE DUE

3-25-90

2-6-90

2/24

Sieve Time 10 (min)

☐ stockpile

(A)

$$\frac{B-A}{B} \times 100 = \underline{24} \% \text{ LOSS}$$

Finess Modules (FM) N/A (See ASTM C 136-83, Section 8.2)

Remarks

WASH FINE GRADING

SMALL FIELD

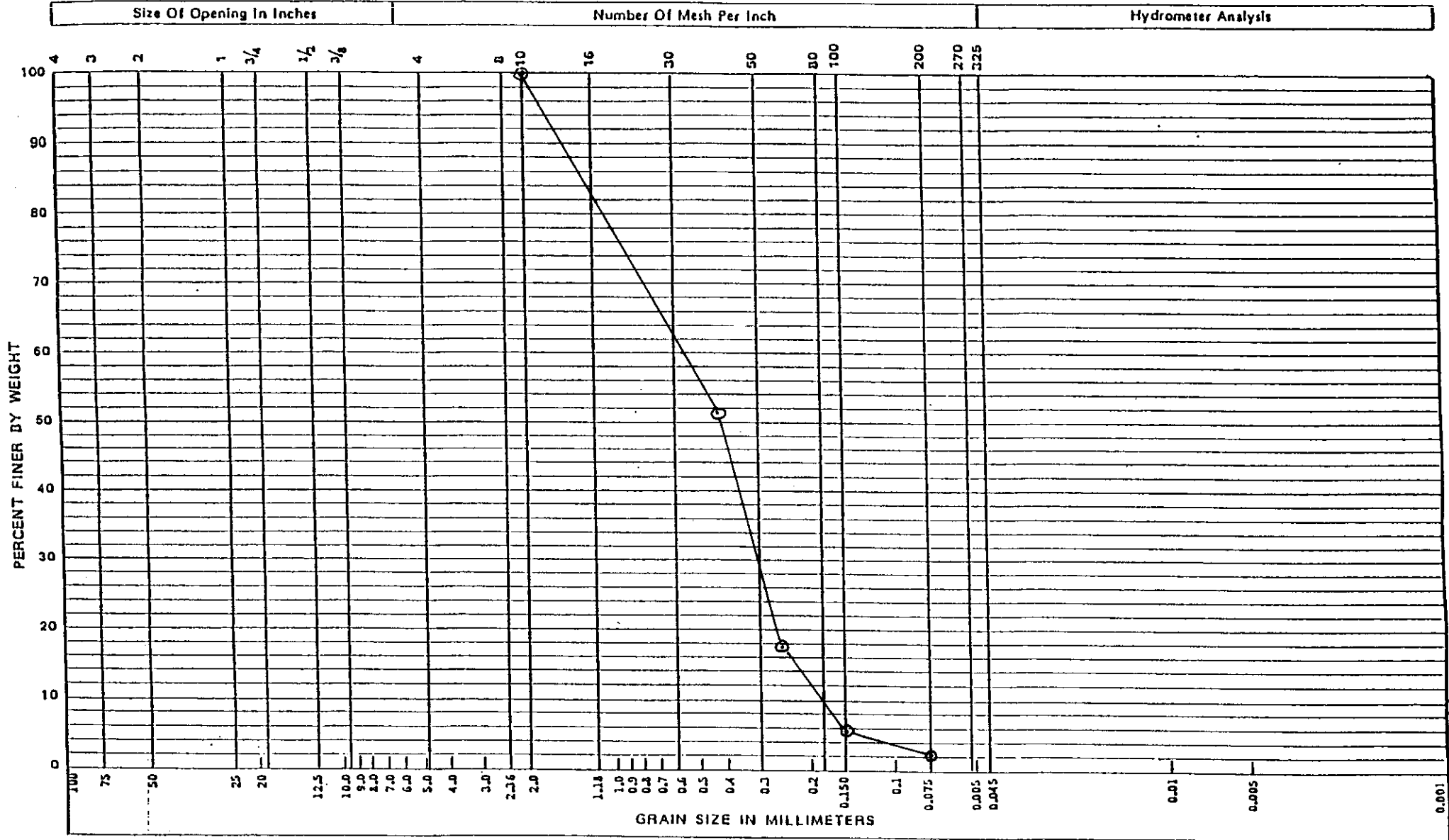
SAMPLE

ALL DATA ARE ACCURATELY AND COMPLETELY RECORDED. THE TEST OPERATOR WAS TRAINED AND USED CALIBRATED INSTRUMENTS

Date 1-31-90

9 2 1 2 1 1 0 5 2

GRAIN SIZE ANALYSIS PLOT

Specimen No. 0-032Procedure No. ETAL-07Rev. 1Date Issued 11-15-89

Sample Description:

SANDY GRAVEL
MC-12-1 SAND Rev 1-29-90

Plotted by: R.G. ALEXANDERDate: 1-29-90Checked by: HL BennyDate: 1-31-90

CALIBRATION DUE DATE 2-6-90

DATE 1-29-90

9212110753



Westinghouse
Hanford Company

CHAIN OF CUSTODY

Company Contact: J. W. Lindberg Telephone: 6-5005

Sample Collected by: R. D. Miller Date: Inclusive dates Time: n/a

Sample Locations: NW-12

Ice Chest No.: n/a Field Logbook Page No.: _____

Remarks: Field Logbook No. WTK-N-300-3

Method of Shipment: govt vehicle - hand carry to J. Alexander 2101-M Lab

Sample Identification

| | |
|---------------------------------|---------------------------------|
| <u>NW-12-1, plastic bag</u> | <u>NW-12-12, S/S liner - 6"</u> |
| <u>NW-12-2, " "</u> | _____ |
| <u>NW-12-3, " "</u> | _____ |
| <u>NW-12-4, " "</u> | _____ |
| <u>NW-12-5, " "</u> | _____ |
| <u>NW-12-6, " "</u> | _____ |
| <u>NW-12-7, " "</u> | _____ |
| <u>NW-12-8, " "</u> | _____ |
| <u>NW-12-9, " "</u> | _____ |
| <u>NW-12-10, " "</u> | _____ |
| <u>NW-12-11, S/S liner - 6"</u> | _____ |

CHAIN OF POSSESSION

Relinquished by: (GAD) R. D. Miller

Relinquished by: J. W. Lindberg
Relinquished by: J. W. Lindberg

Relinquished by: _____

Received by: J. W. Lindberg
Received by: J. W. Lindberg

Received by: R. G. ALEXANDER
Received by: R. G. Alexander

Received by: _____

Date/Time: Jan 16/01 455

Date/Time: 1-18-90/0610

Date/Time: _____

Date/Time: _____



Westinghouse
Hanford Company

SAMPLE ANALYSIS REQUEST

PART I: FIELD SECTION CERCLA, 1100-EM-1, Groundwater Monitoring Well

Collector: Rand Miller Date Sampled: Jan 13-16, 1990 Time: NA hours

Company Contact JW Lindberg Telephone (209) 376-5005

| SAMPLE NUMBER | NUMBER & TYPE OF SAMPLE CONTAINERS | TYPE OF SAMPLE * | ANALYSIS REQUESTED |
|---------------|------------------------------------|------------------|-------------------------------|
| MW-12-1 | 1 plastic bag | Soil | Particle Size, Moisture |
| MW-12-2 | " | " | " " |
| MW-12-3 | " | " | " " |
| MW-12-4 | " | " | " " |
| MW-12-5 | " | " | " " |
| MW-12-6 | " | " | " " |
| MW-12-7 | " | " | " " |
| MW-12-8 | " | " | " " |
| MW-12-9 | " | " | " " |
| MW-12-10 | " | " | " " |
| MW-12-11 | 1 6" split spoon liner | " | Particle Size, Atterberg Lim. |
| MW-12-12 | " | " | Permeability |

Field Information ** Well temporary number MW-12
on the east side of the Horn Rapids Landfill.

Special Handling and/or Storage _____

PART II: LABORATORY SECTION

Received by _____ Title _____ Date _____

Analysis Required _____

* Indicate Whether Sample Is Soil, Sludge, Water, Etc.

** Use Back of Page for Additional Information Relative to Sample Location.

9212311055

RADIATION RELEASE

Bldg. MW-12-1 Date 1-13-90
 Released By Bong
 Operational Health Physics
 Remarks _____

54-3000-022 (09/88)

RADIATION RELEASE

Bldg. MW-12-2 Date 1-13-90
 Released By Bong
 Operational Health Physics
 Remarks _____

54-3000-022 (09/88)

RADIATION RELEASE

Bldg. MW-12-3 Date 1-13-90
 Released By Bong
 Operational Health Physics
 Remarks _____

54-3000-022 (09/88)

RADIATION RELEASE

Bldg. MW-12-4 Date 1-13-90
 Released By Bong
 Operational Health Physics
 Remarks _____

54-3000-022 (09/88)

RADIATION RELEASE

Bldg. MW-12-5 Date 1-13-90
 Released By Bong
 Operational Health Physics
 Remarks _____

54-3000-022 (09/88)

RADIATION RELEASE

Bldg. MW-12-6 Date 1-13-90
 Released By Bong
 Operational Health Physics
 Remarks _____

54-3000-022 (09/88)

RADIATION RELEASE

Bldg. MW-12-7 Date 1-15-90
 Released By McClelland
 Operational Health Physics
 Remarks _____

54-3000-022 (09/88)

RADIATION RELEASE

Bldg. MW-12-8 Date 1-15-90
 Released By McClelland
 Operational Health Physics
 Remarks _____

54-3000-022 (09/88)

921211056

1 Sample

1 Sample

TEST REQUEST FORM

Sample/Specimen No. 0-033 Cost Code/Work Order No. ED 332

Requested By: Org. 80232 Person J. LINDBERG Date 1-29-90

| Test Requested | No. of Samples | Test Lab Information (Instruction Used) |
|-----------------------|----------------|---|
| <u>SIEVE ANALYSIS</u> | <u>1</u> | <u>ETAL-07</u> |
| <u>HYDROMETER</u> | <u>1</u> | <u>ETAL-07 (IF REQ)</u> |
| <u>MOISTURE</u> | <u>1</u> | <u>ETAL-14</u> |
| <u>N/A</u> | <u>N/A</u> | <u>N/A</u> |

Remarks MU-12-2

Received By: RG Alexander Date 1-18-90

Approved By: RG Alexander Date 1-29-90

921211057

SIEVE ANALYSIS DATA SHEET

Sample ID 0-033

Page 1 of 1

Tested By R.G. ALEXANDER

Date 1-29-90

Procedure _____

Rev _____

Date Issued _____

EQUIPMENT ITEM

CALIBRATION NO.

DATE DUE

Balance

3304

8-25-90

Thermometer

0006

2-6-90

N/A

N/A

N/A

Sample Description SAND

Sieve Time 10 (min)

reduced by ☒ splitting

☒ quartering

☐ stockpile

(B)

(A)

BEFORE TEST WT. N/A AFTER TEST WT. N/A

$\frac{B-A}{B} \times 100 = \underline{N/A} \% \text{ LOSS}$

| Sieve ID Number | Sieve Size | Sample Weight | Cumulative Wt. Retained (g) | % Retained | Cumulative % Retained | Cumulative % Pass | % Pass |
|-----------------|--------------|----------------|-----------------------------|-------------|-----------------------|-------------------|-------------|
| <u>N/A</u> | <u>2</u> | <u>4614.13</u> | <u>Ø</u> | <u>Ø</u> | <u>Ø</u> | <u>100</u> | <u>100</u> |
| | <u>1 1/2</u> | | <u>Ø</u> | <u>Ø</u> | <u>Ø</u> | <u>100</u> | <u>100</u> |
| | <u>1</u> | | <u>176.72</u> | <u>3.8</u> | <u>3.8</u> | <u>96.2</u> | <u>96.2</u> |
| | <u>3/4</u> | | <u>212.74</u> | <u>4.6</u> | <u>4.6</u> | <u>95.4</u> | <u>95.4</u> |
| | <u>1/2</u> | | <u>292.83</u> | <u>6.3</u> | <u>6.3</u> | <u>93.7</u> | <u>93.7</u> |
| | <u>3/8</u> | | <u>338.02</u> | <u>7.3</u> | <u>7.3</u> | <u>92.7</u> | <u>92.7</u> |
| | <u>#4</u> | | <u>390.35</u> | <u>8.5</u> | <u>8.5</u> | <u>91.5</u> | <u>91.5</u> |
| | <u>#10</u> | <u>4614.13</u> | <u>432.83</u> | <u>9.4</u> | <u>9.4</u> | <u>90.6</u> | <u>90.6</u> |
| | <u>#40</u> | <u>147.58</u> | <u>15.40</u> | <u>10.4</u> | <u>10.4</u> | <u>89.6</u> | <u>81.2</u> |
| | <u>#60</u> | | <u>51.20</u> | <u>34.7</u> | <u>34.7</u> | <u>65.3</u> | <u>59.2</u> |
| | <u>#100</u> | | <u>80.96</u> | <u>54.9</u> | <u>54.9</u> | <u>45.1</u> | <u>40.9</u> |
| | <u>#200</u> | | <u>104.03</u> | <u>70.5</u> | <u>70.5</u> | <u>29.5</u> | <u>26.7</u> |

Finess Modules (FM) N/A (See ASTM C 136-83, Section 8.2)

MATERIALS FINER THAN NO. 200 SIEVE BY WASHING

C=Percentage of Material Passing a 200 Sieve 29.5 %

D=Original Dry Weight of Sample 147.58 g

E=Dry Weight of Sample After Washing/Sieve 104.03g

$C = \frac{(D-E)}{D} \times 100$

Remarks

WASH FINE GRAINING
SMALL FIELD
SAMPLE

ALL DATA ARE ACCURATELY AND COMPLETELY RECORDED. THE TEST OPERATOR WAS TRAINED AND USED CALIBRATED INSTRUMENTS

Checked By H L Benny

Date 1-31-90

SOIL MOISTURE DATA SHEET

PROCEDURE NO. ETAL-14

REV. NO. 0THERMOMETER NO. 0006

CALIBRATION DUE DATE 2-6-90

[illegible]

ALL REQUIRED DATA ARE ACCURATELY AND COMPLETELY RECORDED. THE TEST OPERATOR WAS APPROPRIATELY TRAINED AND TEST PROCEDURES FOLLOWED TO PRODUCE THE ABOVE DATA

TEST OPERATOR: R.G. ALEXANDER

DATE 1-29-90

921241059

HYDROMETER ANALYSIS DATA SHEET

Sample ID 0.033

Page 1 of 1

Tested By HL Benny Date 3-8-90
 Procedure ETAL-07 Rev 1 Date Issued 11-15-89

| EQUIPMENT ITEM | NO. | CALIBRATION DUE DATE |
|--------------------------|-------------|----------------------|
| Hydrometer | <u>1000</u> | <u>2-16-91</u> |
| Balance | <u>3304</u> | <u>3-25-90</u> |
| Thermometer/Thermocouple | <u>0002</u> | <u>2-9-91</u> |

Specific gravity of Sample 2.70

% Passing No. 10 Sieve 90.6 (%)

Hygroscopic Correction Factor 0

HYGROSCOPIC MOISTURE CONTENT

Wt. Container + Air Dry Soil NA (g)

Wt. Container + Oven Dry Soil NA (g)

Wt. Container NA (g)

Water Content NA (%)

WEIGHT OF SAMPLE

Wt. Container + Soil NA (g)

Wt. Container NA (g)

Wt. Soil 95.11 (g)

REMARKS

COMPOSITE CORRECTION

1st Reading 7 at 24.2 °C

2nd Reading NA at NA °C

Tube D
* Considerable foam (~1") on
top after mixing, readings
are approximate.

W = 104.98

| Date | Clock time | Elapsed time (min) | Hydrometer reading | Hydrometer with composite correction | Temp. (°C) | Soil in suspension (%) | Particle diameter (mm) |
|--------|------------|--------------------|--------------------|--------------------------------------|------------|------------------------|------------------------|
| 3-8-90 | 0923 | 2.0 | ~20 * | 13 | 23.4 | 12.3 | 0.033 |
| | 0926 | 5.0 | ~16 * | 9 | 23.2 | 8.5 | 0.021 |
| | 0936 | 15.0 | 14 | 7 | 23.2 | 6.6 | 0.013 |
| | 0951 | 30.0 | 13 | 6 | 23.1 | 5.6 | 0.009 |
| | 1021 | 60.0 | 12 | 5 | 22.4 | 4.7 | 0.006 |
| ✓ | 1331 | 250.00 | 9 | 2 | 22.0 | 1.9 | 0.003 |
| 3-9-90 | 0921 | 1,440.0 | 8 | 1 | 21.8 | 0.9 | 0.001 |

Formulas and Tables used to calculate percent Soil in suspension, particle diameter and hygroscopic correction factor are found in ASTM D422.

ALL REQUIRED DATA ARE ACCURATELY AND COMPLETELY RECORDED. THE TEST OPERATOR WAS APPROPRIATELY TRAINED AND UTILIZED CALIBRATED TEST INSTRUMENTS AS INDICATED ABOVE. APPROVED TEST PROCEDURES WERE FOLLOWED TO PRODUCE THE ABOVE DATA.

Checked By R.G. Alexander Date 3-14-90

SPECIFIC GRAVITY OF SOILS DATA SHEET

Specimen/Sample No. 0-033

Page 1 of 1

Test Operator R.G. ALEXANDER 3-2-90

| EQUIPMENT ITEM | NO. | DATE DUE |
|------------------|------|----------|
| Balance | 3304 | 3-25-90 |
| Oven Thermometer | 0007 | 8-16-90 |
| Thermometer | 0002 | 2-9-91 |
| Pycnometer | 2554 | N/A |

Wetting Agent "Q" WATER

| DETERMINATION NO. | | 1 | 2 | 3 |
|-------------------|---|--------|-----|-----|
| | Drying Container No. | N/A | N/A | N/A |
| | Wt. Container + Oven Dry Soil, ± 0.01g | N/A | | |
| | Wt. Container, ± 0.01g | N/A | | |
| W _o | Wt. Oven Dry Soil, g | 40.00 | | |
| | Pycnometer No. | 2554 | | |
| | Wt. Pycnometer, g | 135.72 | | |
| W _a | Wt. Pycnometer + Wetting Agent, g | 387.09 | | |
| W _b | Wt. Pycnometer + Wetting Agent + Soil, g | 412.31 | | |
| | Temperature, T _x at W _b , °C | 24.80 | | |
| G _w | Specific Gravity of Wetting Agent at T _x | 1.00 | | |
| G _t | Specific Gravity of Soil at T _x | 2.71 | | |
| G _s | Specific Gravity of Soil at 20°C | 2.70 | | |

$$G_t = \frac{G_w \cdot V_w \cdot W_o}{W_o + (W_a - W_b)}$$

Y_w = Unit Weight Of Water (g/cc)

*G_s = K · G_t

K values found in ASTM D854-58, Table 1

*NOTE G_s = G_t When Test Run at 20 °C

Average Specific Gravity At 20°C

2.70

ALL REQUIRED DATA ARE ACCURATELY AND COMPLETELY RECORDED. THE TEST OPERATOR WAS APPROPRIATELY TRAINED AND UTILIZED CALIBRATED TEST INSTRUMENTS AS INDICATED ABOVE. APPROVED TEST PROCEDURES WERE FOLLOWED TO PRODUCE THE ABOVE DATA.

Checked By Harold Benny

Date 3-2-90

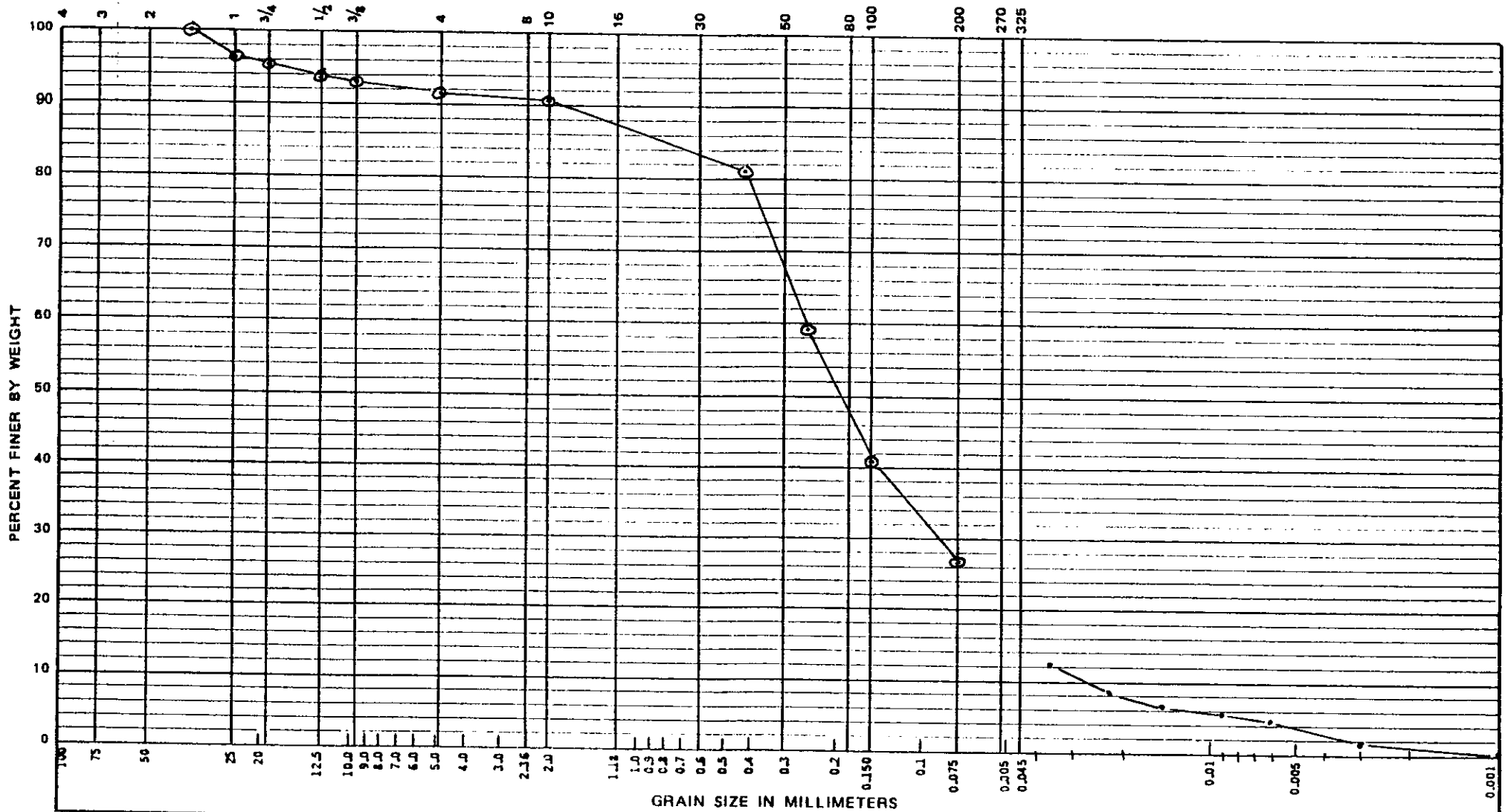
9 2 1 2 1 1 0 6 2

GRAIN SIZE ANALYSIS PLOT

Size Of Opening In Inches

Number Of Mesh Per Inch

Hydrometer Analysis



Specimen No. 0-033

Procedure No. ETAL-07

Rev. 1

Date Issued 11-1589

Sample Description:

12 SAND
MW-12-2 Ret 1-29-90

Plotted by: R.G. ALEXANDER

Date: 1-29-90

Checked by: HL Benny

Date: 1-31-90



Westinghouse
Hanford Company

CHAIN OF CUSTODY

Company Contact: J.W. Lindberg Telephone: 6-5005

Sample Collected by: R.D. Miller Date: Inclusive dates Time: n/a

Sample Locations: NW-12

Ice Chest No.: n/a Field Logbook Page No.: _____

Remarks: Field Logbook No. NWK-N-300-3

Method of Shipment: port vehicle - hand carry to J. Alexander 2101-M Lab.

Sample Identification

| | |
|---------------------------------|---------------------------------|
| <u>NW-12-1, plastic bag</u> | <u>NW-12-12, S/S liner - 6"</u> |
| <u>NW-12-2, " "</u> | _____ |
| <u>NW-12-3, " "</u> | _____ |
| <u>NW-12-4, " "</u> | _____ |
| <u>NW-12-5, " "</u> | _____ |
| <u>NW-12-6, " "</u> | _____ |
| <u>NW-12-7, " "</u> | _____ |
| <u>NW-12-8, " "</u> | _____ |
| <u>NW-12-9, " "</u> | _____ |
| <u>NW-12-10, " "</u> | _____ |
| <u>NW-12-11, S/S liner - 6"</u> | _____ |

CHAIN OF POSSESSION

Relinquished by: (GAD) R.D. Miller

Relinquished by: J.W. Lindberg
Relinquished by: J.W. Lindberg

Relinquished by: _____

Received by: J.W. Lindberg
Received by: J.W. Lindberg
Received by: R.G. ALEXANDER
Received by: R.G. Alexander

Received by: _____

Date/Time: Jun 16/01455
Date/Time: 1-18-90/0610
Date/Time: _____

Date/Time: 6



Westinghouse
Hanford Company

SAMPLE ANALYSIS REQUEST

PART I: FIELD SECTION CERCLA, 1100-EM-1, Groundwater Monitoring Well

Collector: Rand Miller Date Sampled: Jan 13-16, 1990 Time: NA hours

Company Contact JW Lindberg Telephone (809) 376-5005

| SAMPLE NUMBER | NUMBER & TYPE OF SAMPLE CONTAINERS | TYPE OF SAMPLE * | ANALYSIS REQUESTED |
|---------------|------------------------------------|------------------|-------------------------------|
| MW-12-1 | 1 plastic bag | Soil | Particle Size, Moisture |
| MW-12-2 | " | " | " " |
| MW-12-3 | " | " | " " |
| MW-12-4 | " | " | " " |
| MW-12-5 | " | " | " " |
| MW-12-6 | " | " | " " |
| MW-12-7 | " | " | " " |
| MW-12-8 | " | " | " " |
| MW-12-9 | " | " | " " |
| MW-12-10 | " | " | " " |
| MW-12-11 | 1 6" split spoon liner | " | Particle Size, Atterberg Lim. |
| MW-12-12 | " | " | Permeability |

Field Information ** Well temporary number MW-12
on the east side of the Horn Rapids Landfill.

Special Handling and/or Storage _____

PART II: LABORATORY SECTION

Received by _____ Title _____ Date _____

Analysis Required _____

* Indicate Whether Sample Is Soil, Sludge, Water, Etc.

** Use Back of Page for Additional Information Relative to Sample Location.

RADIATION RELEASE

Bldg. MW-12-1 Date 1-13-90
 Released By Bong
 Operational Health Physics
 Remarks _____

54-3000-022 (09/88)

RADIATION RELEASE

Bldg. MW-12-2 Date 1-13-90
 Released By Bong
 Operational Health Physics
 Remarks _____

54-3000-022 (09/88)

RADIATION RELEASE

Bldg. MW-12-3 Date 1-13-90
 Released By Bong
 Operational Health Physics
 Remarks _____

54-3000-022 (09/88)

RADIATION RELEASE

Bldg. MW-12-4 Date 1-13-90
 Released By Bong
 Operational Health Physics
 Remarks _____

54-3000-022 (09/88)

RADIATION RELEASE

Bldg. MW-12-5 Date 1-13-90
 Released By Bong
 Operational Health Physics
 Remarks _____

54-3000-022 (09/88)

RADIATION RELEASE

Bldg. MW-12-6 Date 1-13-90
 Released By Bong
 Operational Health Physics
 Remarks _____

54-3000-022 (09/88)

RADIATION RELEASE

Bldg. MW-12-7 Date 1-15-90
 Released By MCgovern
 Operational Health Physics
 Remarks _____

54-3000-022 (09/88)

RADIATION RELEASE

Bldg. MW-12-8 Date 1-15-90
 Released By MCgovern
 Operational Health Physics
 Remarks _____

54-3000-022 (09/88)

1 sample

1 sample

TEST REQUEST FORM

Sample/Specimen No. 0034 Cost Code/Work Order No. ED-332

Requested By: Org. 80232 Person J. LINDBERG Date 1-29-90

| Test Requested | No. of Samples | Test Lab Information (Instruction Used) |
|-----------------------|----------------|---|
| <u>SIEVE ANALYSIS</u> | <u>1</u> | <u>ETAL-07</u> |
| <u>HYDROMETER</u> | <u>1</u> | <u>ETAL-07 (IFRED)</u> |
| <u>MOISTURE</u> | <u>1</u> | <u>ETAL-14</u> |
| <u>N/A</u> | <u>N/A</u> | <u>N/A</u> |

Remarks FIELD SAMPLE
MW-12-3

Received By: R.G. ALEXANDER Date 1-18-90

Approved By: R.G. ALEXANDER Date 1-29-90

SIEVE ANALYSIS DATA SHEET

Sample ID D-034

Page 1 of 1

Tested By R.G. ALEXANDER Date 1-29-90

Procedure ETM-07 Rev. 1 Date Issued 11-15-89

| EQUIPMENT ITEM | CALIBRATION NO. | DATE DUE |
|----------------|-----------------|----------------|
| Balance | <u>3304</u> | <u>3-25-89</u> |
| Thermometer | <u>0006</u> | <u>2-6-90</u> |
| <u>N/A</u> | <u>N/A</u> | <u>N/A</u> |

Sample Description SAND Sieve Time 10 (min)

reduced by ☒ splitting ☒ quartering ☐ stockpile

(B) BEFORE TEST WT. N/A (A) AFTER TEST WT. N/A $\frac{B-A}{B} \times 100 = \underline{N/A} \% \text{ LOSS}$

| Sieve ID Number | Sieve Size | Sample Weight | Cumulative Wt. Retained (g) | % Retained | Cumulative % Retained | Cumulative % Pass | % Pass |
|-----------------|--------------|----------------|-----------------------------|-------------|-----------------------|-------------------|-------------|
| <u>N/A</u> | <u>2</u> | <u>4338.55</u> | <u>Ø</u> | <u>Ø</u> | <u>Ø</u> | <u>100</u> | <u>100</u> |
| | <u>1 1/2</u> | | <u>Ø</u> | <u>Ø</u> | <u>Ø</u> | <u>100</u> | <u>100</u> |
| | <u>1</u> | | <u>26.99</u> | <u>0.6</u> | <u>0.6</u> | <u>99.4</u> | <u>99.4</u> |
| | <u>3/4</u> | | <u>161.36</u> | <u>3.7</u> | <u>3.7</u> | <u>96.3</u> | <u>96.3</u> |
| | <u>1/2</u> | | <u>233.69</u> | <u>5.4</u> | <u>5.4</u> | <u>94.6</u> | <u>94.6</u> |
| | <u>3/8</u> | | <u>266.66</u> | <u>6.1</u> | <u>6.1</u> | <u>93.9</u> | <u>93.9</u> |
| | <u>#4</u> | | <u>335.49</u> | <u>7.7</u> | <u>7.7</u> | <u>92.3</u> | <u>92.3</u> |
| | <u>#10</u> | <u>4338.55</u> | <u>388.12</u> | <u>8.9</u> | <u>8.9</u> | <u>91.1</u> | <u>91.1</u> |
| | <u>#40</u> | <u>141.53</u> | <u>15.10</u> | <u>10.7</u> | <u>10.7</u> | <u>89.3</u> | <u>81.4</u> |
| | <u>#60</u> | | <u>57.18</u> | <u>40.4</u> | <u>40.4</u> | <u>59.6</u> | <u>54.3</u> |
| | <u>#100</u> | | <u>95.57</u> | <u>67.5</u> | <u>67.5</u> | <u>32.5</u> | <u>29.6</u> |
| | <u>#200</u> | | <u>121.09</u> | <u>85.6</u> | <u>85.6</u> | <u>14.4</u> | <u>13.2</u> |

Finess Modules (FM) N/A (See ASTM C 136-83, Section 8.2)

MATERIALS FINER THAN NO. 200 SIEVE BY WASHING

C=Percentage of Material Passing a 200 Sieve 85.6%

D=Original Dry Weight of Sample 141.53g

E=Dry Weight of Sample After Washing/Sieve 121.09g

$$C = \frac{(D-E)}{D} \times 100$$

Remarks

WASH FINE GRADING
SMALL FIELD
SAMPLE

ALL DATA ARE ACCURATELY AND COMPLETELY RECORDED. THE TEST OPERATOR WAS TRAINED AND USED CALIBRATED INSTRUMENTS
Checked By H.L. Berry Date 1-31-90

921210067

CALIBRATION DUE DATE 2-6-90

DATE 1-29-90

HYDROMETER ANALYSIS DATA SHEET

Sample ID 0-034

Page of

Tested By HLBenny Date 3-7-90

Procedure Rev Date Issued

| EQUIPMENT ITEM | NO. | CALIBRATION DUE DATE |
|--------------------------|-------------|-------------------------|
| Hydrometer | <u>1000</u> | <u>2-16-91</u> |
| Balance | <u>3304</u> | <u>3-25-90</u> |
| Thermometer/Thermocouple | <u>0002</u> | <u>2-9-91</u> |

Specific gravity of Sample 2.71

% Passing No. 10 Sieve 91.1 (%)

Hygroscopic Correction Factor Ø

WEIGHT OF SAMPLE

Wt. Container + Soil 103.42 (g) ^{HLB 2-25-90}

Wt. Container (g)

Wt. Soil 103.42 (g)

COMPOSITE CORRECTION

1st Reading 7 at 24.2 °C

2nd Reading NA at NA °C

HYGROSCOPIC MOISTURE CONTENT

Wt. Container + Air Dry Soil NA (g)

Wt. Container + Oven Dry Soil NA (g)

Wt. Container NA (g)

Water Content NA (%)

REMARKS

Type B

W=113.52

| Date | Clock time | Elapsed time (min) | Hydrometer reading | Hydrometer with composite correction | Temp. (°C) | Soil in suspension (%) | Particle diameter (mm) |
|--------|------------|--------------------|--------------------|--------------------------------------|------------|------------------------|------------------------|
| 3-7-90 | 0704 | 2.0 | 11 | 4 | 24.7 | 3.5 | 0.03 |
| | 0707 | 5.0 | 10 | 3 | 24.4 | 2.6 | 0.02 |
| | 0717 | 15.0 | 8 | 1 | 23.8 | 0.9 | 0.01 |
| | 0732 | 30.0 | 7 | 0 | 23.8 | Ø | NA |
| | 0802 | 60.0 | Ø NA | NA | NA | NA | NA |
| ✓ | 1112 | 250.00 | Ø NA | NA | NA | NA | NA |
| NA | 0702 | 1,440.0 | NA | NA | NA | NA | NA |

Formulas and Tables used to calculate percent Soil in suspension, particle diameter and hygroscopic correction factor are found in ASTM D422.

ALL REQUIRED DATA ARE ACCURATELY AND COMPLETELY RECORDED. THE TEST OPERATOR WAS APPROPRIATELY TRAINED AND UTILIZED CALIBRATED TEST INSTRUMENTS AS INDICATED ABOVE. APPROVED TEST PROCEDURES WERE FOLLOWED TO PRODUCE THE ABOVE DATA.

Checked By RG Alexander

Date 3-14-90

SPECIFIC GRAVITY OF SOILS DATA SHEET

 Specimen/Sample No. 0-034

 Page 1 of 1

 Test Operator R.G. ALEXANDER
2-26-90

| EQUIPMENT ITEM | NO. | DATE DUE |
|------------------|------|----------|
| Balance | 3304 | 3-25-90 |
| Oven Thermometer | 0007 | 8-16-90 |
| Thermometer | 0002 | 2-9-91 |
| Pycnometer | 2554 | N/A |

 Wetting Agent "Q" WATER

| DETERMINATION NO. | | 1 | 2 | 3 |
|-------------------|--|--------|-----|-----|
| | Drying Container No. | N/A | N/A | N/A |
| | Wt. Container + Oven Dry Soil, $\pm 0.01g$ | N/A | | |
| | Wt. Container, $\pm 0.01g$ | N/A | | |
| W_o | Wt. Oven Dry Soil, g | 40.00 | | |
| | Pycnometer No. | 2554 | | |
| | Wt. Pycnometer, g | 135.22 | | |
| W_a | Wt. Pycnometer + Wetting Agent, g | 387.07 | | |
| W_b | Wt. Pycnometer + Wetting Agent + Soil, g | 412.33 | | |
| | Temperature, T_x at W_b , $^{\circ}C$ | 25.6 C | | |
| G_w | Specific Gravity of Wetting Agent at T_x | 1.00 | | |
| G_t | Specific Gravity of Soil at T_x | 2.71 | | |
| G_s | Specific Gravity of Soil at $20^{\circ}C$ | 2.71 | | |

* LIGHT BROWN SAND

$$G_t = \frac{G_w \cdot V_w \cdot W_o}{W_o + (W_a - W_b)}$$

 γ_w = Unit Weight Of Water (g/cc)

 $*G_s = K \cdot G_t$

K values found in ASTM D854-58, Table 1

 *NOTE $G_s = G_t$ When Test Run at $20^{\circ}C$

 Average Specific Gravity At $20^{\circ}C$
2.71

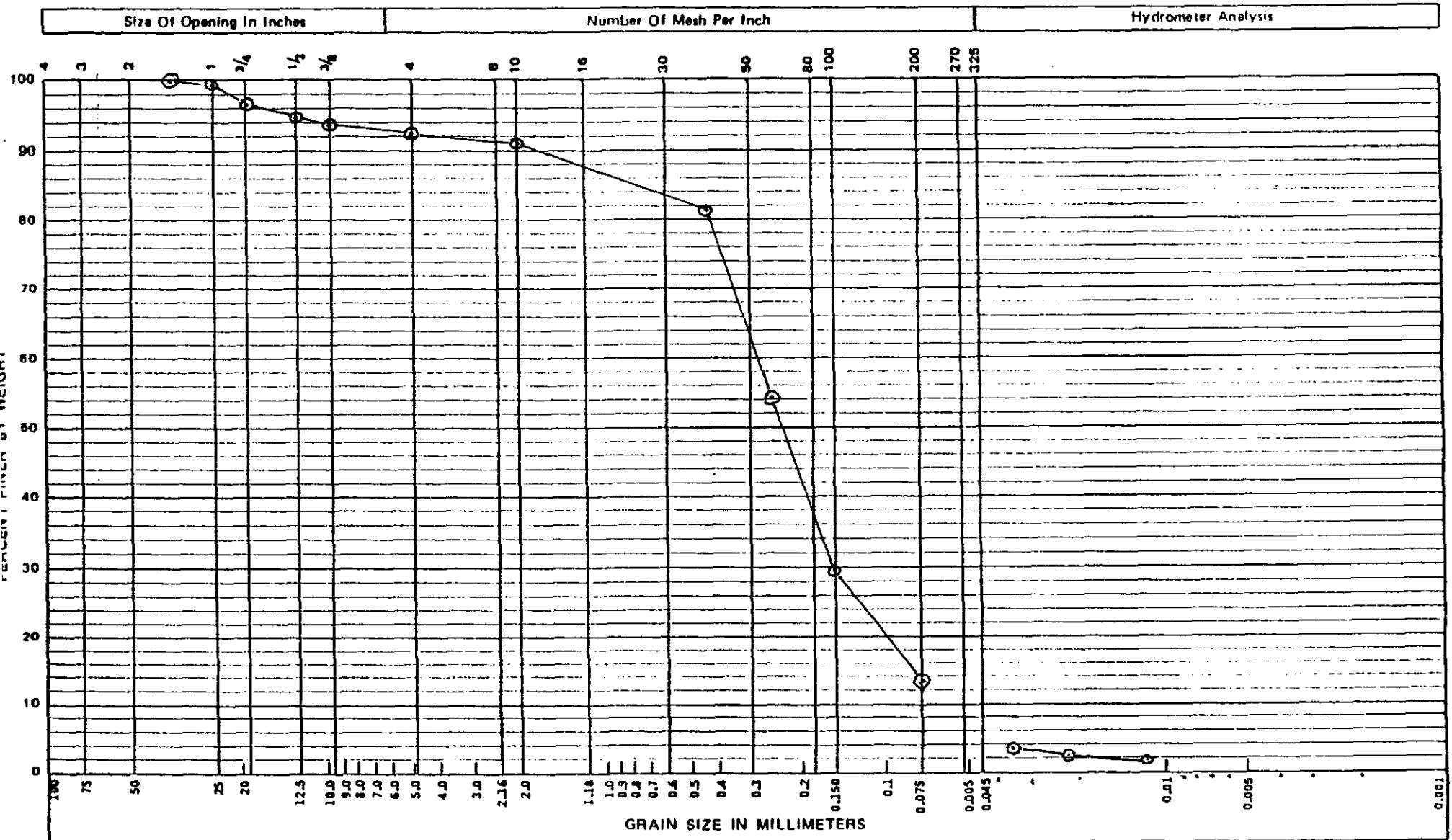
ALL REQUIRED DATA ARE ACCURATELY AND COMPLETELY RECORDED. THE TEST OPERATOR WAS APPROPRIATELY TRAINED AND UTILIZED CALIBRATED TEST INSTRUMENTS AS INDICATED ABOVE. APPROVED TEST PROCEDURES WERE FOLLOWED TO PRODUCE THE ABOVE DATA.

 Checked By HL Benny

 Date 3-1-90

9 2 1 2 1 1 0 7 1

GRAIN SIZE ANALYSIS PLOT

Specimen No. 0-034Procedure No. ETAL-07Rev. 1Date Issued 11-15-89

Sample Description:

SAND
MW-12-3

Plotted by:

R.G. ALEXANDER

Date:

1-29-90

Checked by:

HL Benny

Date:

1-31-90



Westinghouse
Hanford Company

CHAIN OF CUSTODY

Company Contact: J.W. Lindberg Telephone: 6-5005

Sample Collected by: R.D. Miller Date: Inclusive dates Time: n/a

Sample Locations: NW-12

Ice Chest No.: n/a Field Logbook Page No.: _____

Remarks: Field Logbook No. # WKC-N-300-3

Method of Shipment: quit vehicle - hand carry to J. Alexander 2101-M Lab

Sample Identification

| Sample Identification | Sample Identification |
|---------------------------------|---------------------------------|
| <u>NW-12-1, plastic bag</u> | <u>NW-12-12, S/S liner - 6"</u> |
| <u>NW-12-2, " "</u> | |
| <u>NW-12-3, " "</u> | |
| <u>NW-12-4, " "</u> | |
| <u>NW-12-5, " "</u> | |
| <u>NW-12-6, " "</u> | |
| <u>NW-12-7, " "</u> | |
| <u>NW-12-8, " "</u> | |
| <u>NW-12-9, " "</u> | |
| <u>NW-12-10, " "</u> | |
| <u>NW-12-11, S/S liner - 6"</u> | |

CHAIN OF POSSESSION

Relinquished by: (GAD) R.D. Miller

Relinquished by: J.W. Lindberg

Relinquished by: _____

Relinquished by: _____

Received by: J.W. Lindberg

Received by: R.G. ALEXANDER

Received by: R.G. Alexander

Received by: _____

Date/Time: Jun 16/01455

Date/Time: 1-18-90/0610

Date/Time: _____

Date/Time: _____



Westinghouse
Hanford Company

SAMPLE ANALYSIS REQUEST

PART I: FIELD SECTION CERCLA, 1100-EM-1, Groundwater Monitoring Well

Collector: Rand Miller Date Sampled: Jan 13-16, 1990 Time: NA hours

Company Contact JW Lindberg Telephone (209) 376-5005

| SAMPLE NUMBER | NUMBER & TYPE OF SAMPLE CONTAINERS | TYPE OF SAMPLE* | ANALYSIS REQUESTED |
|---------------|------------------------------------|-----------------|-------------------------------|
| MW-12-1 | 1 plastic bag | Soil | Particle Size, Moisture |
| MW-12-2 | " | " | " " |
| MW-12-3 | " | " | " " |
| MW-12-4 | " | " | " " |
| MW-12-5 | " | " | " " |
| MW-12-6 | " | " | " " |
| MW-12-7 | " | " | " " |
| MW-12-8 | " | " | " " |
| MW-12-9 | " | " | " " |
| MW-12-10 | " | " | " " |
| MW-12-11 | 1 6" Split Spoon Liner | " | Particle Size, Atterberg Lim. |
| MW-12-12 | " | " | Permeability |

Field Information** Well temporary number MW-12
on the east side of the Horn Rapids Landfill.

Special Handling and/or Storage _____

PART II: LABORATORY SECTION

Received by _____ Title _____ Date _____

Analysis Required _____

* Indicate Whether Sample is Soil, Sludge, Water, Etc.

** Use Back of Page for Additional Information Relative to Sample Location.

92121073

RADIATION RELEASE

Bldg. MW-12-1 Date 1-13-90
 Released By Bong
 Operational Health Physics
 Remarks _____

54-3000-022 (09/88)

RADIATION RELEASE

Bldg. MW-12-2 Date 1-13-90
 Released By Bong
 Operational Health Physics
 Remarks _____

54-3000-022 (09/88)

RADIATION RELEASE

Bldg. MW-12-3 Date 1-13-90
 Released By Bong
 Operational Health Physics
 Remarks _____

54-3000-022 (09/88)

RADIATION RELEASE

Bldg. MW-12-4 Date 1-13-90
 Released By Bong
 Operational Health Physics
 Remarks _____

54-3000-022 (09/88)

RADIATION RELEASE

Bldg. MW-12-5 Date 1-13-90
 Released By Bong
 Operational Health Physics
 Remarks _____

54-3000-022 (09/88)

RADIATION RELEASE

Bldg. MW-12-6 Date 1-13-90
 Released By Bong
 Operational Health Physics
 Remarks _____

54-3000-022 (09/88)

RADIATION RELEASE

Bldg. MW-12-7 Date 1-15-90
 Released By MCopeland
 Operational Health Physics
 Remarks _____

54-3000-022 (09/88)

RADIATION RELEASE

Bldg. MW-12-8 Date 1-15-90
 Released By MCopeland
 Operational Health Physics
 Remarks _____

54-3000-022 (09/88)

92121074

TEST REQUEST FORM

Sample/Specimen No. 0-05 Cost Code/Work Order No. ED 332

Requested By: Org. 80232 Person J. LINDBERG Date 1-29-90

| Test Requested | No. of Samples | Test Lab Information (Instruction Used) |
|-----------------------|----------------|---|
| <u>SIEVE ANALYSIS</u> | <u>1</u> | <u>ETAL-07</u> |
| <u>HYDROMETER</u> | <u>1</u> | <u>ETAL-07 (IF REQ)</u> |
| <u>MUISTURE</u> | <u>1</u> | <u>ETAL-14</u> |
| <u>N/A</u> | <u>N/A</u> | <u>N/A</u> |

Remarks FIELD SAMPLE
MW-2-4

Received By: R.G ALEXANDER Date 1-18-90

Approved By: R.G ALEXANDER Date 1-29-90

9212110075

SIEVE ANALYSIS DATA SHEET

Sample ID 0-035

Page 1 of 1

Tested By R.G. ALEXANDER

Date 1-29-90

Procedure ETAC-07

Rev 1

Date Issued 11-15-89

EQUIPMENT ITEM

CALIBRATION NO.

DATE DUE

Balance

2304

3-25-90

Thermometer

0006

2-6-90

N/A

N/A

N/A

Sample Description SANDY GRAVEL

Sieve Time 10 (min)

reduced by ☒ splitting

☒ quartering

☐ stockpile

(B)

(A)

BEFORE TEST WT. N/A AFTER TEST WT. N/A $\frac{B-A}{B} \times 100 = \frac{N/A}{N/A} \times 100 = \frac{N/A}{N/A} \% \text{ LOSS}$

| Sieve ID Number | Sieve Size | Sample Weight | Cumulative Wt. Retained (g) | % Retained | Cumulative % Retained | Cumulative % Pass | % Pass |
|-----------------|--------------|----------------|-----------------------------|-------------|-----------------------|-------------------|-------------|
| <u>N/A</u> | <u>2 1/2</u> | <u>4319.06</u> | <u>663.44</u> | <u>15.4</u> | <u>15.4</u> | <u>84.6</u> | <u>84.6</u> |
| | <u>2</u> | | <u>663.44</u> | <u>15.4</u> | <u>15.4</u> | <u>84.6</u> | <u>84.6</u> |
| | <u>1 1/2</u> | | <u>965.92</u> | <u>22.4</u> | <u>22.4</u> | <u>77.6</u> | <u>77.6</u> |
| | <u>1</u> | | <u>1298.72</u> | <u>30.1</u> | <u>30.1</u> | <u>69.9</u> | <u>69.9</u> |
| | <u>3/4</u> | | <u>1650.26</u> | <u>38.2</u> | <u>38.2</u> | <u>61.8</u> | <u>61.8</u> |
| | <u>1/2</u> | | <u>1830.83</u> | <u>42.4</u> | <u>42.4</u> | <u>57.6</u> | <u>57.6</u> |
| | <u>3/8</u> | | <u>1961.08</u> | <u>45.4</u> | <u>45.4</u> | <u>54.6</u> | <u>54.6</u> |
| | <u>#4</u> | | <u>2130.42</u> | <u>49.3</u> | <u>49.3</u> | <u>50.7</u> | <u>50.7</u> |
| | <u>#10</u> | <u>4319.06</u> | <u>2265.35</u> | <u>52.5</u> | <u>52.5</u> | <u>47.5</u> | <u>47.5</u> |
| | <u>#40</u> | <u>149.07</u> | <u>36.08</u> | <u>24.2</u> | <u>24.2</u> | <u>75.8</u> | <u>36.0</u> |
| | <u>#60</u> | | <u>73.27</u> | <u>49.2</u> | <u>49.2</u> | <u>50.8</u> | <u>24.1</u> |
| | <u>#100</u> | | <u>106.31</u> | <u>71.3</u> | <u>71.3</u> | <u>28.7</u> | <u>13.6</u> |
| | <u>#200</u> | | <u>126.47</u> | <u>84.8</u> | <u>84.8</u> | <u>15.2</u> | <u>7.2</u> |

Finess Modules (FM) N/A (See ASTM C 136-83, Section B.2)

MATERIALS FINER THAN NO. 200 SIEVE BY WASHING

C=Percentage of Material Passing a 200 Sieve 15.2 %

D=Original Dry Weight of Sample 149.07 g

E=Dry Weight of Sample After Washing/Sieve 126.47 g

$C = \frac{(D-E)}{D} \times 100$

Remarks

WASH FINE GRADING
SMALL FIELD
SAMPLE

ALL DATA ARE ACCURATELY AND COMPLETELY RECORDED. THE TEST OPERATOR WAS TRAINED AND USED CALIBRATED INSTRUMENTS

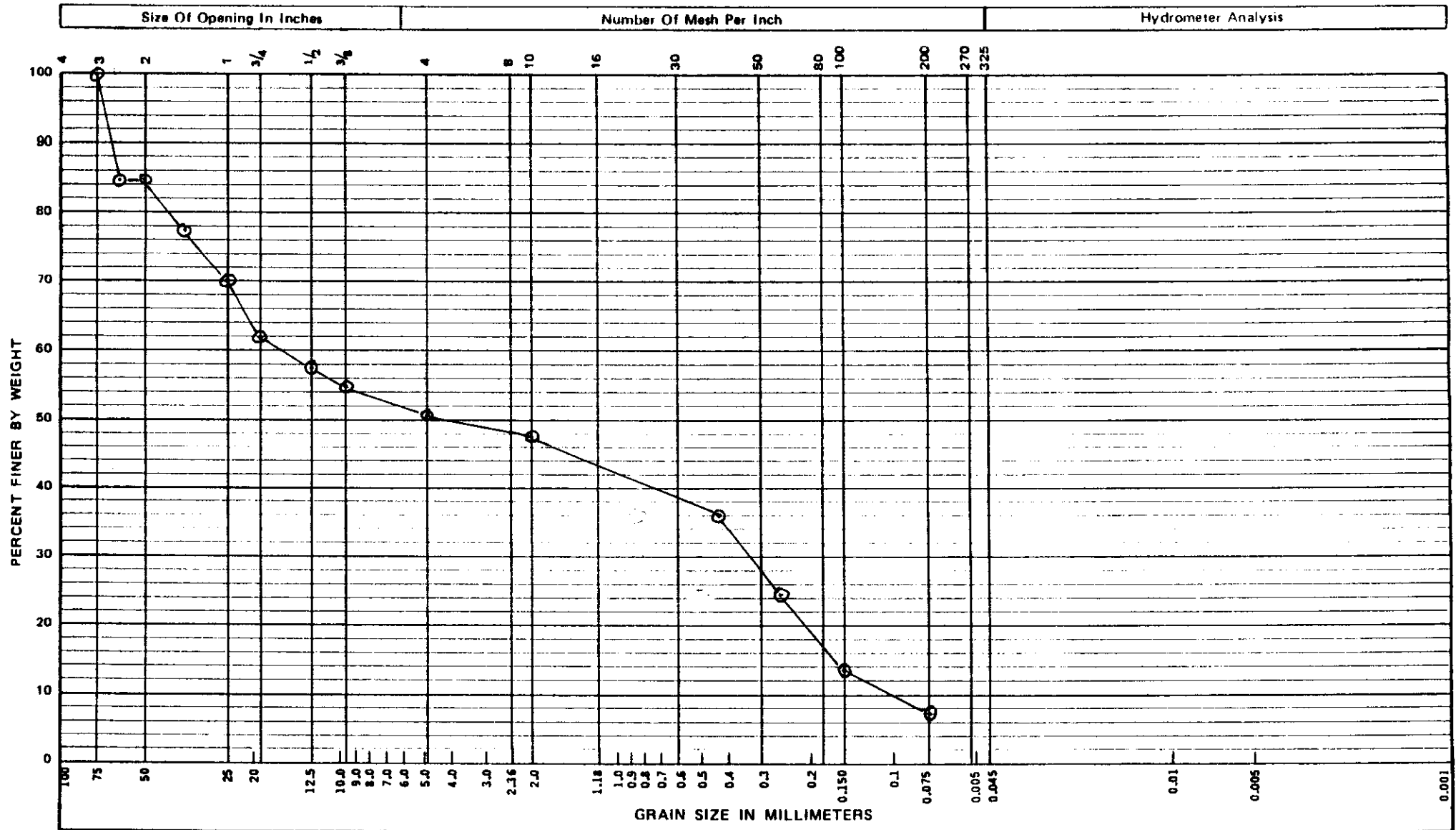
Checked By H.L. Benny

Date 1-31-90

92121176

9 2 1 2 1 1 0 7 7

GRAIN SIZE ANALYSIS PLOT

Specimen No. D-035Procedure No. ETAL-07Rev. 1Date Issued 11-15-89

Sample Description:

SANDY GRAVEL
MW-12-4

Plotted by:

R.G. ALEXANDER

Date:

1-29-90

Checked by:

H.C. Benny

Date:

1-31-90

SOIL MOISTURE DATA SHEET

PROCEDURE NO. ETAL-14 REV. NO. 0

THERMOMETER NO. 0006 CALIBRATION DUE DATE 2-6-90

REV. NO. 0

CALIBRATION DUE DATE 2-6-90

[illegible]

ALL REQUIRED DATA ARE ACCURATELY AND COMPLETELY RECORDED. THE TEST OPERATOR WAS APPROPRIATELY TRAINED AND TEST PROCEDURES FOLLOWED TO PRODUCE THE ABOVE DATA

TEST OPERATOR: *R.G. ALEXANDER* DATE *1-29-90*

DATE 1-29-90

921278



Westinghouse
Hanford Company

SAMPLE ANALYSIS REQUEST

PART I: FIELD SECTION CERCLA, 1100-EM-1, Groundwater Monitoring Well

Collector: Pand Miller Date Sampled: Jan 13-16, 1990 Time: NA hours

Company Contact JW Lindberg Telephone (209) 376-5005

| SAMPLE NUMBER | NUMBER & TYPE OF SAMPLE CONTAINERS | TYPE OF SAMPLE* | ANALYSIS REQUESTED |
|---------------|------------------------------------|-----------------|-------------------------------|
| MW-12-1 | 1 plastic bag | Soil | Particle Size, Moisture |
| MW-12-2 | " | " | " " |
| MW-12-3 | " | " | " " |
| MW-12-4 | " | " | " " |
| MW-12-5 | " | " | " " |
| MW-12-6 | " | " | " " |
| MW-12-7 | " | " | " " |
| MW-12-8 | " | " | " " |
| MW-12-9 | " | " | " " |
| MW-12-10 | " | " | " " |
| MW-12-11 | 1 6" Split Spoon Liner | " | Particle Size, Atterberg Lim. |
| MW-12-12 | " | " | Permeability |

Field Information** Well temporary number MW-12 on the east side of the Horn Rapids Landfill.

Special Handling and/or Storage _____

PART II: LABORATORY SECTION

Received by _____ Title _____ Date _____

Analysis Required _____

* Indicate Whether Sample is Soil, Sludge, Water, Etc.

** Use Back of Page for Additional Information Relative to Sample Location.

921211079



Westinghouse
Hanford Company

CHAIN OF CUSTODY

Company Contact: J. W. Lindberg Telephone: 6-5005

Sample Collected by: R. D. Miller Date: Inclusive dates Time: n/a

Sample Locations: NW-12

Ice Chest No.: n/a Field Logbook Page No.: _____

Remarks: Field Logbook No# NWK-N-306-3

Method of Shipment: quit vehicle - hand carry to J. Alexander 2101-M Lab

Sample Identification

| | |
|-------------------------------|-------------------------------|
| <u>NW-12-1, plastic bag</u> | <u>NW-12-12, S/S liner-6"</u> |
| <u>NW-12-2, " "</u> | |
| <u>NW-12-3, " "</u> | |
| <u>NW-12-4, " "</u> | |
| <u>NW-12-5, " "</u> | |
| <u>NW-12-6, " "</u> | |
| <u>NW-12-7, " "</u> | |
| <u>NW-12-8, " "</u> | |
| <u>NW-12-9, " "</u> | |
| <u>NW-12-10, " "</u> | |
| <u>NW-12-11, S/S liner-6"</u> | |

CHAIN OF POSSESSION

Relinquished by: (GAD) R. D. Miller

Relinquished by: J. W. Lindberg

Relinquished by: _____

Received by: J. W. Lindberg

Received by: R. G. ALEXANDER

Received by: _____

Date/Time: Jun 16/01455

Date/Time: 1-18-90/0610

Date/Time: _____

Date/Time: _____

54-3000-022 (09/88)

54-3000-022 (09/88)

54-3000-022 (09/88)

54-3000-022 (09/88)

54-3000-022 (09/88)

54-3000-022 (09/88)

54-3000-022 (09/88)

54-3000-022 (09/88)

1807126

TEST REQUEST FORM

Sample/Specimen No. 0-036 Cost Code/Work Order No. ED 332

Requested By: Org. 80232 Person J. LINDBERG Date 1-29-90

| Test Requested | No. of Samples | Test Lab Information (Instruction Used) |
|-----------------------|-------------------|--|
| <u>SIEVE ANALYSIS</u> | <u>1</u> | <u>ETAL-07</u> |
| <u>HYDROMETER</u> | <u>1</u> | <u>ETAL-07 (IF REQ)</u> |
| <u>MOISTURE</u> | <u>1</u> | <u>ETAL-14</u> |
| <u>N/A</u> | <u>N/A</u> | <u>N/A</u> |

Remarks FIELD SAMPLE
MW-12-5

Received By: R.G. ALEXANDER Date 1-18-90

Approved By: R.G. ALEXANDER Date 1-29-90

9212110532

SIEVE ANALYSIS DATA SHEET

Sample ID 0-036

Page 1 of 1

Tested By R.G. ALEXANDER

Date 1-29-90

Procedure ETM-07

Rev 1

Date Issued 11-15-89

EQUIPMENT ITEM

CALIBRATION NO.

DATE DUE

Balance

3304

3-25-90

Thermometer

0006

2-6-90

N/A

N/A

N/A

Sample Description SANDY GRAVEL

Sieve Time 10 (min)

reduced by ☒ splitting

☒ quartering

☐ stockpile

(B)

(A)

BEFORE TEST WT. N/A AFTER TEST WT. N/A $\frac{B-A}{B} \times 100 = \underline{N/A} \% \text{ LOSS}$

| Sieve ID Number | Sieve Size | Sample Weight | Cumulative Wt. Retained (g) | % Retained | Cumulative % Retained | Cumulative % Pass | % Pass |
|-----------------|--------------|----------------|-----------------------------|-------------|-----------------------|-------------------|-------------|
| <u>N/A</u> | <u>2</u> | <u>4839.71</u> | <u>0</u> | <u>0</u> | <u>0</u> | <u>100</u> | <u>100</u> |
| | <u>1 1/2</u> | | <u>218.49</u> | <u>4.5</u> | <u>4.5</u> | <u>95.5</u> | <u>95.5</u> |
| | <u>1</u> | | <u>428.69</u> | <u>8.9</u> | <u>8.9</u> | <u>91.1</u> | <u>91.1</u> |
| | <u>3/4</u> | | <u>685.82</u> | <u>14.2</u> | <u>14.2</u> | <u>85.8</u> | <u>85.8</u> |
| | <u>1/2</u> | | <u>926.77</u> | <u>19.1</u> | <u>19.1</u> | <u>80.9</u> | <u>80.9</u> |
| | <u>3/8</u> | | <u>1060.28</u> | <u>21.9</u> | <u>21.9</u> | <u>78.1</u> | <u>78.1</u> |
| | <u>#4</u> | <u>↓</u> | <u>1201.32</u> | <u>24.8</u> | <u>24.8</u> | <u>75.2</u> | <u>75.2</u> |
| | <u>#10</u> | <u>4839.71</u> | <u>1224.41</u> | <u>25.3</u> | <u>25.3</u> | <u>74.7</u> | <u>74.7</u> |
| | <u>#40</u> | <u>124.62</u> | <u>47.17</u> | <u>37.9</u> | <u>37.9</u> | <u>62.1</u> | <u>46.4</u> |
| | <u>#60</u> | | <u>99.75</u> | <u>80.0</u> | <u>80.0</u> | <u>20.0</u> | <u>14.9</u> |
| | <u>#100</u> | | <u>114.27</u> | <u>91.7</u> | <u>91.7</u> | <u>8.3</u> | <u>6.2</u> |
| <u>↓</u> | <u>#200</u> | <u>↓</u> | <u>119.64</u> | <u>96.0</u> | <u>96.0</u> | <u>4.0</u> | <u>3.0</u> |

Finess Modules (FM) N/A (See ASTM C 136-83, Section 8.2)

MATERIALS FINER THAN NO. 200 SIEVE BY WASHING

C=Percentage of Material Passing a 200 Sieve 4.0 %

D=Original Dry Weight of Sample 124.62 g

E=Dry Weight of Sample After Washing/Sieve 119.64 g

$C = \frac{D-E}{D} \times 100$

Remarks

WASH FINE GRADING
SMALL FIELD
SAMPLE

ALL DATA ARE ACCURATELY AND COMPLETELY RECORDED. THE TEST OPERATOR WAS TRAINED AND USED CALIBRATED INSTRUMENTS

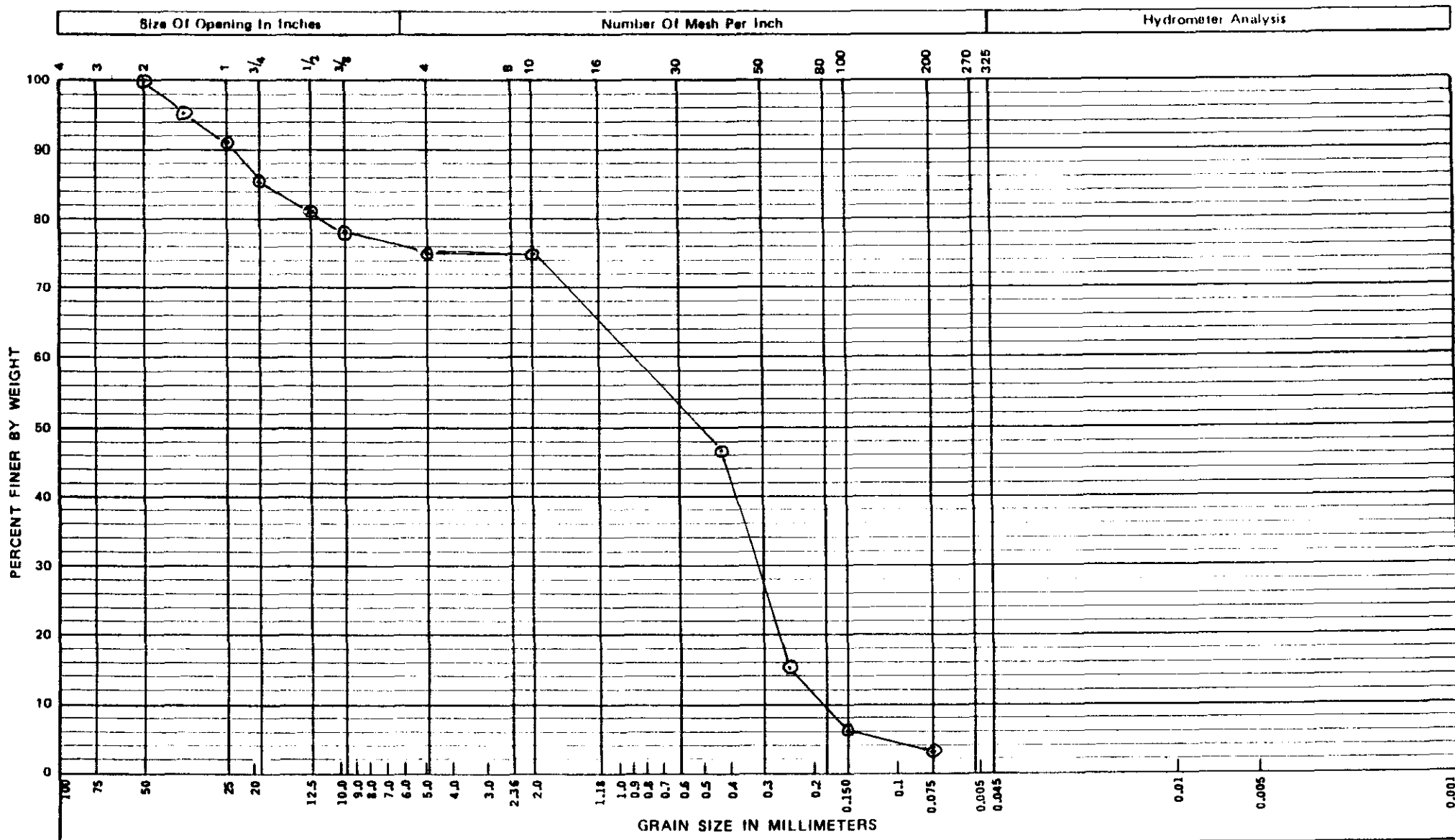
Checked By HL Benny

Date 1-31-90

921210093

9 2 1 2 1 1 0 0 3 4

GRAIN SIZE ANALYSIS PLOT



PROCEDURE NO. ETAL-14

REV. NO. 0THERMOMETER NO. 0006[illegible]

TEST OPERATOR: R.G. ALEXANDER

DATE 1-29-90

6212110135



Westinghouse
Hanford Company

CHAIN OF CUSTODY

Company Contact: J. W. Lindberg Telephone: 6-5005

Sample Collected by: R. D. Miller Date: Inclusive dates Time: n/a

Sample Locations: MW-12

Ice Chest No.: n/a Field Logbook Page No.: _____

Remarks: Field Logbook No # WHC-N-306-3

Method of Shipment: govt vehicle - hand carry to J. Alexander 2101-M Lab

Sample Identification

| | |
|-------------------------------|-------------------------------|
| <u>MW-12-1, plastic bag</u> | <u>MW-12-12, S/S liner-6"</u> |
| <u>MW-12-2, " "</u> | |
| <u>MW-12-3, " "</u> | |
| <u>MW-12-4, " "</u> | |
| <u>MW-12-5, " "</u> | |
| <u>MW-12-6, " "</u> | |
| <u>MW-12-7, " "</u> | |
| <u>MW-12-8, " "</u> | |
| <u>MW-12-9, " "</u> | |
| <u>MW-12-10, " "</u> | |
| <u>MW-12-11, S/S liner-6"</u> | |

CHAIN OF POSSESSION

Relinquished by: (GAD) R.D. Miller

Relinquished by: J. W. Lindberg
Relinquished by: J. W. Lindberg

Relinquished by: _____

Received by: J. W. Lindberg

Received by: R. G. ALEXANDER
Received by: R. G. Alexander

Received by: _____

Date/Time: Jan 16/01/55

Date/Time: 1-18-90/0610
Date/Time: _____

Date/Time: _____

921210035



Westinghouse
Hanford Company

SAMPLE ANALYSIS REQUEST

PART I: FIELD SECTION CERCLA, 1100-EM-1, Groundwater Monitoring Well

Collector: Rand Miller Date Sampled: Jan 13-16, 1990 Time: NA hours

Company Contact JW Lindberg Telephone (209) 376-5005

| SAMPLE NUMBER | NUMBER & TYPE OF SAMPLE CONTAINERS | TYPE OF SAMPLE* | ANALYSIS REQUESTED |
|---------------|------------------------------------|-----------------|-------------------------------|
| MW-12-1 | 1 plastic bag | Soil | Particle Size, Moisture |
| MW-12-2 | " | " | " " |
| MW-12-3 | " | " | " " |
| MW-12-4 | " | " | " " |
| MW-12-5 | " | " | " " |
| MW-12-6 | " | " | " " |
| MW-12-7 | " | " | " " |
| MW-12-8 | " | " | " " |
| MW-12-9 | " | " | " " |
| MW-12-10 | " | " | " " |
| MW-12-11 | 1 6" Split Spoon Liner | " | Particle Size, Atterberg Lim. |
| MW-12-12 | " | " | Permeability |

Field Information** Well temporary number MW-12
on the east side of the Horn Rapids Landfill.

Special Handling and/or Storage _____

PART II: LABORATORY SECTION

Received by _____ Title _____ Date _____

Analysis Required _____

* Indicate Whether Sample is Soil, Sludge, Water, Etc.

** Use Back of Page for Additional Information Relative to Sample Location.

92121037

RADIATION RELEASE

Bldg. MW-12-1 Date 1-13-90
 Released By Bong
 Operational Health Physics
 Remarks _____

54-3000-022 (09/88)

RADIATION RELEASE

Bldg. MW-12-3 Date 1-13-90
 Released By Bong
 Operational Health Physics
 Remarks _____

54-3000-022 (09/88)

RADIATION RELEASE

Bldg. MW-12-5 Date 1-13-90
 Released By Bong
 Operational Health Physics
 Remarks _____

54-3000-022 (09/88)

RADIATION RELEASE

Bldg. MW-12-7 Date 1-15-90
 Released By McClelland
 Operational Health Physics
 Remarks 1 Sample

54-3000-022 (09/88)

RADIATION RELEASE

Bldg. MW-12-2 Date 1-13-90
 Released By Bong
 Operational Health Physics
 Remarks _____

54-3000-022 (09/88)

RADIATION RELEASE

Bldg. MW-12-4 Date 1-13-90
 Released By Bong
 Operational Health Physics
 Remarks _____

54-3000-022 (09/88)

RADIATION RELEASE

Bldg. MW-12-6 Date 1-13-90
 Released By Bong
 Operational Health Physics
 Remarks _____

54-3000-022 (09/88)

RADIATION RELEASE

Bldg. MW-12-8 Date 1-15-90
 Released By McClelland
 Operational Health Physics
 Remarks 1 Sample

54-3000-022 (09/88)

92121038

TEST REQUEST FORM

Sample/Specimen No. 0-037 Cost Code/Work Order No. ED 332

Requested By: Org. 80232 Person J. LINDBERG Date 1-29-90

| Test Requested | No. of Samples | Test Lab Information (Instruction Used) |
|-----------------------|----------------|---|
| <u>SIEVE ANALYSIS</u> | <u>1</u> | <u>ETAL-07</u> |
| <u>HYDROMETER</u> | <u>1</u> | <u>ETAL-07 (IF REQ)</u> |
| <u>MOISTURE</u> | <u>1</u> | <u>ETAL-14</u> |
| <u>N/A</u> | <u>N/A</u> | <u>N/A</u> |

Remarks FIELD SAMPLE
MW-12-6

Received By: R.G. ALEXANDER Date 1-18-90

Approved By: RG ALEXANDER Date 1-29-90

92121099

SIEVE ANALYSIS DATA SHEET

Sample ID 0-037

Page 1 of 1

Tested By RG ALEXANDER

Date 1-29-90

Procedure ETAL-07

Rev 1

Date Issued 11-15-89

EQUIPMENT ITEM

CALIBRATION NO.

DATE DUE

Balance

3304

3-25-90

Thermometer

0006

2-6-90

N/A

N/A

N/A

Sample Description SANDY GRAVEL

Sieve Time 10 (min)

reduced by ☒ splitting

☒ quartering

☐ stockpile

(B) BEFORE TEST WT. N/A (A) AFTER TEST WT. N/A $\frac{B-A}{B} \times 100 = \frac{N/A}{N/A} \% \text{ LOSS}$

| Sieve ID Number | Sieve Size | Sample Weight | Cumulative Wt. Retained (g) | % Retained | Cumulative % Retained | Cumulative % Pass | % Pass |
|-----------------|--------------|----------------|-----------------------------|-------------|-----------------------|-------------------|-------------|
| <u>N/A</u> | <u>2</u> | <u>4359.81</u> | <u>0</u> | <u>0</u> | <u>0</u> | <u>100</u> | <u>100</u> |
| | <u>1 1/2</u> | | <u>674.27</u> | <u>15.5</u> | <u>15.5</u> | <u>84.5</u> | <u>84.5</u> |
| | <u>1</u> | | <u>891.07</u> | <u>20.4</u> | <u>20.4</u> | <u>79.6</u> | <u>79.6</u> |
| | <u>3/4</u> | | <u>1117.56</u> | <u>25.6</u> | <u>25.6</u> | <u>74.4</u> | <u>74.4</u> |
| | <u>1/2</u> | | <u>1510.32</u> | <u>34.6</u> | <u>34.6</u> | <u>65.4</u> | <u>65.4</u> |
| | <u>3/8</u> | | <u>1796.81</u> | <u>41.2</u> | <u>41.2</u> | <u>58.8</u> | <u>58.8</u> |
| | <u>#4</u> | | <u>2318.78</u> | <u>53.2</u> | <u>53.2</u> | <u>46.8</u> | <u>46.8</u> |
| | <u>#10</u> | <u>4359.81</u> | <u>2667.52</u> | <u>61.2</u> | <u>61.2</u> | <u>38.8</u> | <u>38.8</u> |
| | <u>#40</u> | <u>147.15</u> | <u>75.76</u> | <u>51.5</u> | <u>51.5</u> | <u>48.5</u> | <u>18.8</u> |
| | <u>#60</u> | | <u>100.56</u> | <u>68.3</u> | <u>68.3</u> | <u>31.7</u> | <u>12.3</u> |
| | <u>#100</u> | | <u>113.26</u> | <u>77.0</u> | <u>77.0</u> | <u>23.0</u> | <u>8.9</u> |
| | <u>#200</u> | | <u>123.41</u> | <u>83.9</u> | <u>83.9</u> | <u>16.1</u> | <u>4.2</u> |

Finess Modules (FM) N/A (See ASTM C 136-83, Section 8.2)

MATERIALS FINER THAN NO. 200 SIEVE BY WASHING

C=Percentage of Material Passing a 200 Sieve 16.1 %

D=Original Dry Weight of Sample 147.15 g

E=Dry Weight of Sample After Washing/Sieve 123.41 g

$$C = \frac{D-E}{D} \times 100$$

Remarks

WASH FINE GRADING
SMALL FIELD
SAMPLE

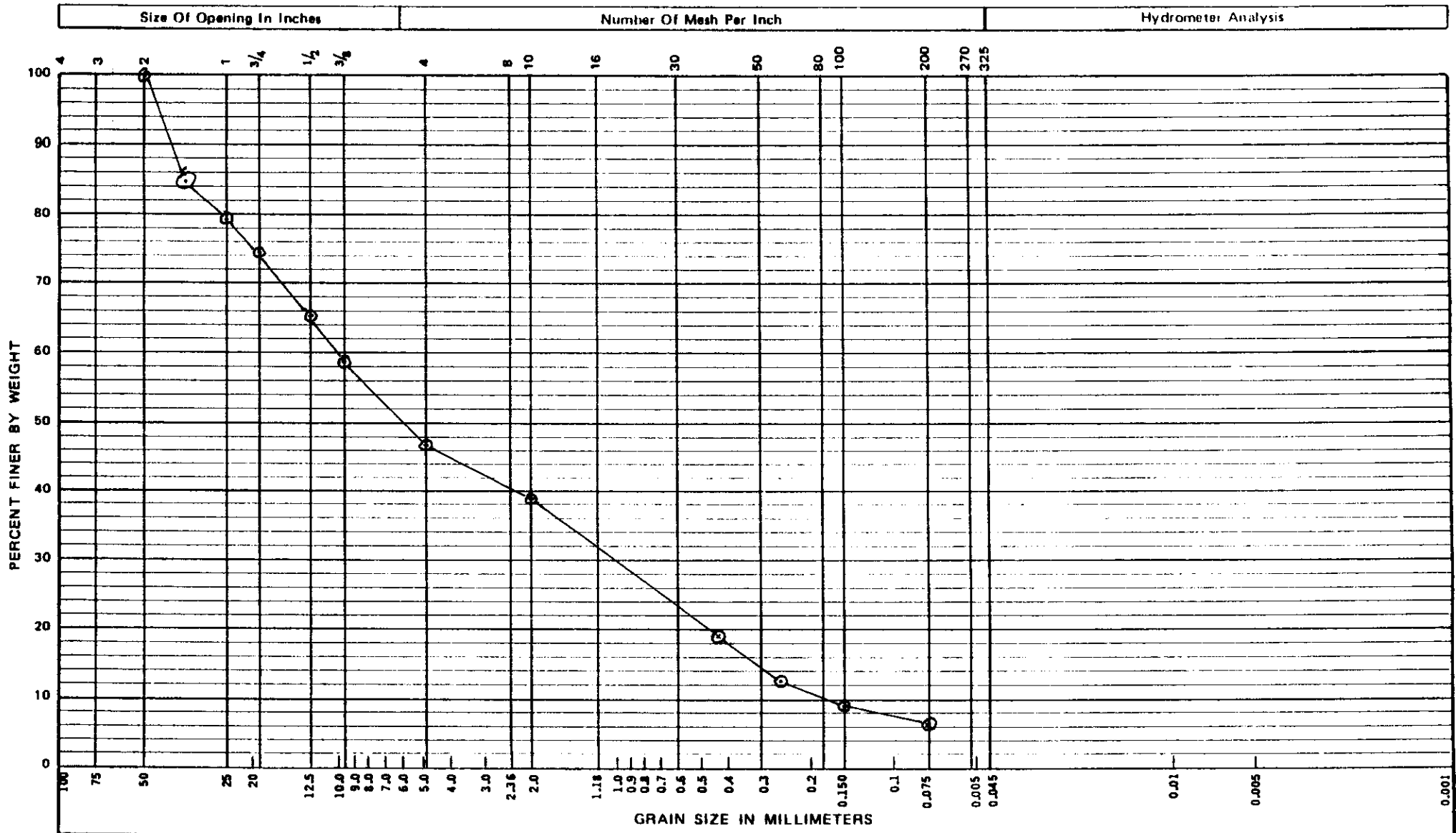
ALL DATA ARE ACCURATELY AND COMPLETELY RECORDED. THE TEST OPERATOR WAS TRAINED AND USED CALIBRATED INSTRUMENTS

Checked By HL Benny Date 1-31-90

921210090

9 2 1 2 1 1 0 9 1

GRAIN SIZE ANALYSIS PLOT

Specimen No. 0-037Procedure No. ETAL-07Rev 1Date Issued 11-15-89

Sample Description:

SANDY GRAVEL
MW-12-6Plotted by: R.G. ALEXANDERDate: 1-29-90Checked by: HL BennyDate: 1-31-90

| | |
|-----------------------------|------------------------------------|
| SOIL MOISTURE DATA SHEET | |
| PROCEDURE NO. <u>ETM-14</u> | REV. NO. <u>Ø</u> |
| THERMOMETER NO. <u>0006</u> | CALIBRATION DUE DATE <u>2-6-90</u> |

REV. NO. Ø

CALIBRATION DUE DATE 2-6-90

[illegible]

ALL REQUIRED DATA ARE ACCURATELY AND COMPLETELY RECORDED. THE TEST OPERATOR WAS APPROPRIATELY TRAINED AND TEST PROCEDURES FOLLOWED TO PRODUCE THE ABOVE DATA

DATE 1-29-90



Westinghouse
Hanford Company

CHAIN OF CUSTODY

Company Contact: J.W. Lindberg Telephone: 6-5005

Sample Collected by: R.D. Miller Date: Inclusive dates Time: NA

Sample Locations: MW-12

Ice Chest No.: NA Field Logbook Page No.: _____

Remarks: Field Logbook No. # MWK-N-300-3

Method of Shipment: govt vehicle - hand carry to J. Alexander 2101-M Lab

Sample Identification

| | |
|-------------------------------|-------------------------------|
| <u>MW-12-1, plastic bag</u> | <u>MW-12-12, S/S liner-6"</u> |
| <u>MW-12-2, " "</u> | _____ |
| <u>MW-12-3, " "</u> | _____ |
| <u>MW-12-4, " "</u> | _____ |
| <u>MW-12-5, " "</u> | _____ |
| <u>MW-12-6, " "</u> | _____ |
| <u>MW-12-7, " "</u> | _____ |
| <u>MW-12-8, " "</u> | _____ |
| <u>MW-12-9, " "</u> | _____ |
| <u>MW-12-10, " "</u> | _____ |
| <u>MW-12-11, S/S liner-6"</u> | _____ |

CHAIN OF POSSESSION

Relinquished by:

(GA) R.D. Miller

Relinquished by:

J.W. Lindberg

Relinquished by:

Relinquished by:

Received by:

J.W. Lindberg

Received by:

R.G. ALEXANDER

Received by:

Received by:

Date/Time:

Jan 16/90 1455

Date/Time:

1-18-90/0610

Date/Time:

Date/Time:

6

9212110093



Westinghouse
Hanford Company

SAMPLE ANALYSIS REQUEST

PART I: FIELD SECTION CERCLA, 1100-EM-1, Groundwater Monitoring Well

Collector: Rand Miller Date Sampled: Jan 13-16, 1990 Time: NA hours

Company Contact JW Lindberg Telephone (209) 376-5005

| SAMPLE NUMBER | NUMBER & TYPE OF SAMPLE CONTAINERS | TYPE OF SAMPLE * | ANALYSIS REQUESTED |
|---------------|------------------------------------|------------------|-------------------------------|
| MW-12-1 | 1 plastic bag | Soil | Particle Size, Moisture |
| MW-12-2 | " | " | " " |
| MW-12-3 | " | " | " " |
| MW-12-4 | " | " | " " |
| MW-12-5 | " | " | " " |
| MW-12-6 | " | " | " " |
| MW-12-7 | " | " | " " |
| MW-12-8 | " | " | " " |
| MW-12-9 | " | " | " " |
| MW-12-10 | " | " | " " |
| MW-12-11 | 1 6" Split Spoon Liner | " | Particle Size, Atterberg Lim. |
| MW-12-12 | " | " | Permeability |

Field Information ** Well temporary number MW-12
on the east side of the Horn Rapids Landfill.

Special Handling and/or Storage _____

PART II: LABORATORY SECTION

Received by _____ Title _____ Date _____

Analysis Required _____

* Indicate Whether Sample is Soil, Sludge, Water, Etc.

** Use Back of Page for Additional Information Relative to Sample Location.

9212110094

RADIATION RELEASE

Bldg. MW-12-1 Date 1-13-90
 Released By Bong
 Operational Health Physics
 Remarks _____

54-3000-022 (09/88)

RADIATION RELEASE

Bldg. MW-12-3 Date 1-13-90
 Released By Bong
 Operational Health Physics
 Remarks _____

54-3000-022 (09/88)

RADIATION RELEASE

Bldg. MW-12-5 Date 1-13-90
 Released By Bong
 Operational Health Physics
 Remarks _____

54-3000-022 (09/88)

RADIATION RELEASE

Bldg. MW-12-7 Date 1-15-90
 Released By McClelland
 Operational Health Physics
 Remarks 1 Sample

54-3000-022 (09/88)

RADIATION RELEASE

Bldg. MW-12-2 Date 1-13-90
 Released By Bong
 Operational Health Physics
 Remarks _____

54-3000-022 (09/88)

RADIATION RELEASE

Bldg. MW-12-4 Date 1-13-90
 Released By Bong
 Operational Health Physics
 Remarks _____

54-3000-022 (09/88)

RADIATION RELEASE

Bldg. MW-12-6 Date 1-13-90
 Released By Bong
 Operational Health Physics
 Remarks _____

54-3000-022 (09/88)

RADIATION RELEASE

Bldg. MW-12-8 Date 1-15-90
 Released By McClelland
 Operational Health Physics
 Remarks 1 Sample

54-3000-022 (09/88)

9212095

TEST REQUEST FORM

Sample/Specimen No. 0-038 Cost Code/Work Order No. ED 332

Requested By: Org. 80232 Person J. LINDBERG Date 1-29-90

| Test Requested | No. of Samples | Test Lab Information (Instruction Used) |
|-----------------------|----------------|---|
| <u>SIEVE ANALYSIS</u> | <u>1</u> | <u>ETAL-07</u> |
| <u>HYDROMETER</u> | <u>1</u> | <u>ETAL-07 (IF REQ)</u> |
| <u>MOISTURE</u> | <u>1</u> | <u>ETAL-14</u> |
| <u>N/A</u> | <u>N/A</u> | <u>N/A</u> |

Remarks FIELD SAMPLE
MW-12-7

Received By: R.G. ALEXANDER Date 1-18-90

Approved By: R.G. ALEXANDER Date 1-29-90

9212110096

SIEVE ANALYSIS DATA SHEET

Sample ID 0-038

Page 1 of 1

Tested By R.G. ALEXANDER

Date 1-29-90

Procedure ETAL-07

Rev 1

Date Issued 11-15-89

EQUIPMENT ITEM

CALIBRATION NO.

DATE DUE

Balance

3304

3-25-90

Thermometer

0006

2-6-90

N/A

N/A

N/A

Sample Description SANDY GRAVEL

Sieve Time 10 (min)

reduced by ☒ splitting

☒ quartering

☐ stockpile

(B)

(A)

BEFORE TEST WT. N/A AFTER TEST WT. N/A $\frac{B-A}{B} \times 100 = \frac{N/A}{N/A} \% \text{ LOSS}$

| Sieve ID Number | Sieve Size | Sample Weight | Cumulative Wt. Retained (g) | % Retained | Cumulative % Retained | Cumulative % Pass | % Pass |
|-----------------|--------------|----------------|-----------------------------|-------------|-----------------------|-------------------|-------------|
| <u>N/A</u> | <u>2</u> | <u>4501.57</u> | <u>Ø</u> | <u>Ø</u> | <u>Ø</u> | <u>100</u> | <u>100</u> |
| | <u>1 1/2</u> | | <u>134.40</u> | <u>3.0</u> | <u>3.0</u> | <u>97.0</u> | <u>97.0</u> |
| | <u>1</u> | | <u>525.82</u> | <u>11.7</u> | <u>11.7</u> | <u>88.3</u> | <u>88.3</u> |
| | <u>3/4</u> | | <u>797.27</u> | <u>17.7</u> | <u>17.7</u> | <u>82.3</u> | <u>82.3</u> |
| | <u>1/2</u> | | <u>1054.08</u> | <u>23.4</u> | <u>23.4</u> | <u>76.6</u> | <u>76.6</u> |
| | <u>3/8</u> | | <u>1249.22</u> | <u>27.8</u> | <u>27.8</u> | <u>72.2</u> | <u>72.2</u> |
| | <u>#4</u> | | <u>1676.80</u> | <u>37.2</u> | <u>37.2</u> | <u>62.8</u> | <u>62.8</u> |
| | <u>#10</u> | <u>4501.57</u> | <u>2062.44</u> | <u>45.8</u> | <u>45.8</u> | <u>54.2</u> | <u>54.2</u> |
| | <u>#40</u> | <u>149.59</u> | <u>104.96</u> | <u>70.2</u> | <u>70.2</u> | <u>29.8</u> | <u>16.2</u> |
| | <u>#60</u> | | <u>125.67</u> | <u>84.0</u> | <u>84.0</u> | <u>16.0</u> | <u>8.7</u> |
| | <u>#100</u> | | <u>132.67</u> | <u>88.7</u> | <u>88.7</u> | <u>11.3</u> | <u>6.1</u> |
| | <u>#200</u> | | <u>138.34</u> | <u>92.5</u> | <u>92.5</u> | <u>7.5</u> | <u>4.1</u> |

Finess Modules (FM) N/A (See ASTM C 136-83, Section 8.2)

MATERIALS FINER THAN NO. 200 SIEVE BY WASHING

C=Percentage of Material Passing a 200 Sieve 7.5 %

D=Original Dry Weight of Sample 149.59g

E=Dry Weight of Sample After Washing/Sieve 138.34g

$C = \frac{(D-E)}{D} \times 100$

Remarks

WASH FINE GRADING

SMALL FIELD

SAMPLE

ALL DATA ARE ACCURATELY AND COMPLETELY RECORDED. THE TEST OPERATOR WAS TRAINED AND USED CALIBRATED INSTRUMENTS

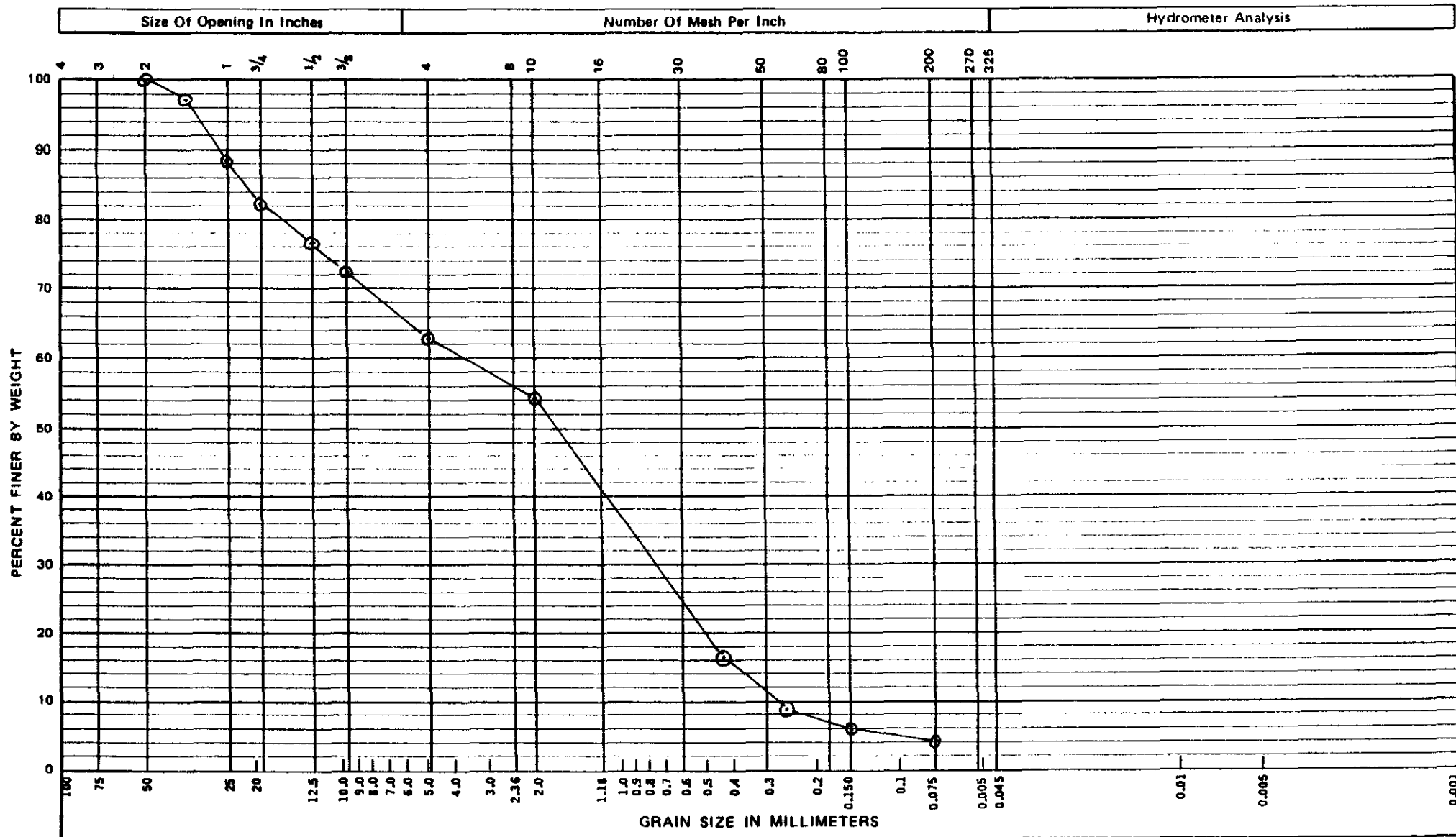
Checked By HL Benny

Date 1-31-90

921211097

9 2 1 2 1 1 0 1 9 8

GRAIN SIZE ANALYSIS PLOT

Specimen No. 0-038Procedure No. ETAL-07Rev 1Date Issued 11-15-89

Sample Description:

SANDY GRAVEL
MW-12-7Plotted by R.G. ALEXANDERDate: 1-29-90Checked by HL BennyDate: 1-31-90



CHAIN OF CUSTODY

Company Contact: J. W. Lindberg Telephone: 6-5005Sample Collected by: R. D. Miller Date: Inclusive dates Time: N/ASample Locations: MW-12Ice Chest No.: n/a Field Logbook Page No.: _____Remarks: Field Logbook No # MWK-N-306-3Method of Shipment: gov't vehicle - hand carry to J. Alexander 2101-M Lab

Sample Identification

| | |
|---------------------------------|---------------------------------|
| <u>MW-12-1, plastic bag</u> | <u>MW-12-12, S/S liner - 6"</u> |
| <u>MW-12-2, " "</u> | |
| <u>MW-12-3, " "</u> | |
| <u>MW-12-4, " "</u> | |
| <u>MW-12-5, " "</u> | |
| <u>MW-12-6, " "</u> | |
| <u>MW-12-7, " "</u> | |
| <u>MW-12-8, " "</u> | |
| <u>MW-12-9, " "</u> | |
| <u>MW-12-10, " "</u> | |
| <u>MW-12-11, S/S liner - 6"</u> | |

CHAIN OF POSSESSION

Relinquished by: (Gar) R. D. MillerRelinquished by: J. W. Lindberg

Relinquished by: _____

Relinquished by: _____

Received by: J. W. LindbergReceived by: R. G. ALEXANDERReceived by: R. G. Alexander

Received by: _____

Date/Time: JUN 16 90 1455Date/Time: 1-18-90/0610

Date/Time: _____

Date/Time: _____

SOIL MOISTURE DATA SHEET

PROCEDURE NO. ETAL-14 REV. NO. 6

THERMOMETER NO. 0006 CALIBRATION DUE DATE 2-6-90

REV. NO. 4

CALIBRATION DUE DATE 2-6-90

[illegible]

ALL REQUIRED DATA ARE ACCURATELY AND COMPLETELY RECORDED. THE TEST OPERATOR WAS APPROPRIATELY TRAINED AND TEST PROCEDURES FOLLOWED TO PRODUCE THE ABOVE DATA

TEST OPERATOR: R-G ALEXANDER DATE 1-29-90

DATE 1-29-90



Westinghouse
Hanford Company

SAMPLE ANALYSIS REQUEST

PART I: FIELD SECTION CERCLA, 1100-EM-1, Groundwater Monitoring Well

Collector: Rand Miller Date Sampled: Jan 13-16, 1990 Time: NA hours

Company Contact JW Lindberg Telephone (509) 376-5005

| SAMPLE NUMBER | NUMBER & TYPE OF SAMPLE CONTAINERS | TYPE OF SAMPLE * | ANALYSIS REQUESTED |
|---------------|------------------------------------|------------------|-------------------------------|
| MW-12-1 | 1 plastic bag | Soil | Particle Size, Moisture |
| MW-12-2 | " | " | " " |
| MW-12-3 | " | " | " " |
| MW-12-4 | " | " | " " |
| MW-12-5 | " | " | " " |
| MW-12-6 | " | " | " " |
| MW-12-7 | " | " | " " |
| MW-12-8 | " | " | " " |
| MW-12-9 | " | " | " " |
| MW-12-10 | " | " | " " |
| MW-12-11 | 1 6" Split Spoon Liner | " | Particle Size, Atterberg Lim. |
| MW-12-12 | " | " | Permeability |

Field Information ** Well temporary number MW-12
on the east side of the Horn Rapids Landfill.

Special Handling and/or Storage _____

PART II: LABORATORY SECTION

Received by _____ Title _____ Date _____

Analysis Required _____

* Indicate Whether Sample Is Soil, Sludge, Water, Etc.

** Use Back of Page for Additional Information Relative to Sample Location.

9212110001

RADIATION RELEASE

Bldg. MW-12-1 Date 1-13-90
 Released By Bong
 Operational Health Physics
 Remarks _____

54-3000-022 (09/88)

RADIATION RELEASE

Bldg. MW-12-2 Date 1-13-90
 Released By Bong
 Operational Health Physics
 Remarks _____

54-3000-022 (09/88)

RADIATION RELEASE

Bldg. MW-12-3 Date 1-13-90
 Released By Bong
 Operational Health Physics
 Remarks _____

54-3000-022 (09/88)

RADIATION RELEASE

Bldg. MW-12-4 Date 1-13-90
 Released By Bong
 Operational Health Physics
 Remarks _____

54-3000-022 (09/88)

RADIATION RELEASE

Bldg. MW-12-5 Date 1-13-90
 Released By Bong
 Operational Health Physics
 Remarks _____

54-3000-022 (09/88)

RADIATION RELEASE

Bldg. MW-12-6 Date 1-13-90
 Released By Bong
 Operational Health Physics
 Remarks _____

54-3000-022 (09/88)

RADIATION RELEASE

Bldg. MW-12-7 Date 1-15-90
 Released By McClelland
 Operational Health Physics
 Remarks 1 Sample

54-3000-022 (09/88)

RADIATION RELEASE

Bldg. MW-12-8 Date 1-15-90
 Released By McClelland
 Operational Health Physics
 Remarks 1 Sample

54-3000-022 (09/88)

92121002

TEST REQUEST FORM

Sample/Specimen No. 0-039 Cost Code/Work Order No. ED332

Requested By: Org. 80232 Person J. LINDBERG Date 1-29-90

| Test Requested | No. of Samples | Test Lab Information (Instruction Used) |
|-----------------------|----------------|---|
| <u>SIEVE ANALYSIS</u> | <u>1</u> | <u>ETAL-07</u> |
| <u>HYDROMETER</u> | <u>1</u> | <u>ETAL-07 (IF REQ)</u> |
| <u>MOISTURE</u> | <u>1</u> | <u>ETAL-14</u> |
| <u>N/A</u> | <u>N/A</u> | <u>N/A</u> |

Remarks FIELD SAMPLE
MW-12-8

Received By: R.G. ALEXANDER Date 1-18-90

Approved By: R.G. ALEXANDER Date 1-29-90

9212110003

SIEVE ANALYSIS DATA SHEET

Sample ID 0-039

Page 1 of 1

Tested By R.G. ALEXANDER

Date 1-29-90

Procedure ETAL-07

Rev 1

Date Issued 11-15-89

| EQUIPMENT ITEM | CALIBRATION NO. | DATE DUE |
|----------------|-----------------|----------------|
| Balance | <u>3304</u> | <u>3-25-90</u> |
| Thermometer | <u>0006</u> | <u>2-6-90</u> |
| <u>N/A</u> | <u>N/A</u> | <u>N/A</u> |

Sample Description SANDY GRAVEL

Sieve Time 10 (min)

reduced by ☒ splitting ☒ quartering ☐ stockpile

(B) BEFORE TEST WT. N/A (A) AFTER TEST WT. N/A $\frac{B-A}{B} \times 100 = \frac{N/A}{N/A} \% \text{ LOSS}$

| Sieve ID Number | Sieve Size | Sample Weight | Cumulative Wt. Retained (g) | % Retained | Cumulative % Retained | Cumulative % Pass | % Pass |
|-----------------|--------------|----------------|-----------------------------|-------------|-----------------------|-------------------|-------------|
| <u>N/A</u> | <u>2</u> | <u>4268.13</u> | <u>Ø</u> | <u>Ø</u> | <u>Ø</u> | <u>100</u> | <u>100</u> |
| | <u>1 1/2</u> | | <u>117.23</u> | <u>2.7</u> | <u>2.7</u> | <u>97.3</u> | <u>97.3</u> |
| | <u>1</u> | | <u>361.25</u> | <u>8.5</u> | <u>8.5</u> | <u>91.5</u> | <u>91.5</u> |
| | <u>3/4</u> | | <u>552.88</u> | <u>13.0</u> | <u>13.0</u> | <u>87.0</u> | <u>87.0</u> |
| | <u>1/2</u> | | <u>936.67</u> | <u>21.9</u> | <u>21.9</u> | <u>78.1</u> | <u>78.1</u> |
| | <u>3/8</u> | | <u>1236.31</u> | <u>29.0</u> | <u>29.0</u> | <u>71.0</u> | <u>71.0</u> |
| | <u>#4</u> | <u>↓</u> | <u>2060.17</u> | <u>48.3</u> | <u>48.3</u> | <u>51.7</u> | <u>51.7</u> |
| | <u>#10</u> | <u>4268.13</u> | <u>2849.94</u> | <u>66.8</u> | <u>66.8</u> | <u>33.2</u> | <u>33.2</u> |
| | <u>#40</u> | <u>142.17</u> | <u>58.89</u> | <u>41.4</u> | <u>41.4</u> | <u>58.6</u> | <u>19.5</u> |
| | <u>#60</u> | <u>↓</u> | <u>77.96</u> | <u>54.8</u> | <u>54.8</u> | <u>45.2</u> | <u>15.0</u> |
| | <u>#100</u> | <u>↓</u> | <u>92.30</u> | <u>64.9</u> | <u>64.9</u> | <u>35.1</u> | <u>11.7</u> |
| <u>Y</u> | <u>#200</u> | <u>↓</u> | <u>107.17</u> | <u>75.4</u> | <u>75.4</u> | <u>24.6</u> | <u>8.2</u> |

Finess Modules (FM) N/A (See ASTM C 136-83, Section 8.2)

MATERIALS FINER THAN NO. 200 SIEVE BY WASHING

C=Percentage of Material Passing a 200 Sieve 24.6 %

D=Original Dry Weight of Sample 142.17 g

E=Dry Weight of Sample After Washing/Sieve 107.17 g

$$C = \frac{(D-E)}{D} \times 100$$

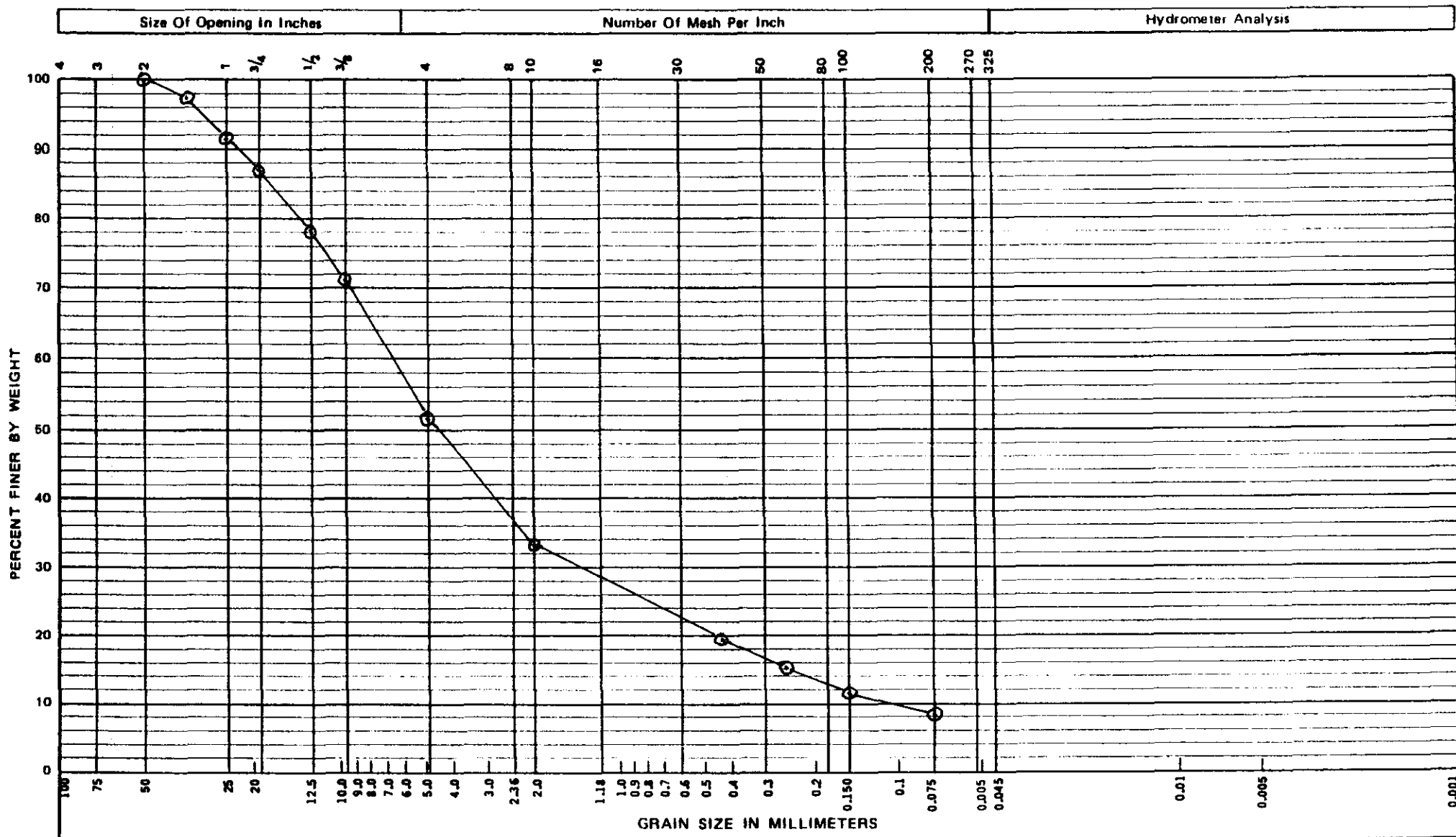
Remarks

WASH FINE GRADING
SMALL FIELD
SAMPLE

ALL DATA ARE ACCURATELY AND COMPLETELY RECORDED. THE TEST OPERATOR WAS TRAINED AND USED CALIBRATED INSTRUMENTS
Checked By HL Benny Date 1-31-90

9 2 1 2 1 1 0 0 5

GRAIN SIZE ANALYSIS PLOT

Specimen No. D-039Procedure No. ETAL-07Rev. 1Date Issued 11-15-89

Sample Description: SANDY GRAVEL
MW-12-8

Plotted by R.G. ALEXANDER
 Date: 1-29-80

Checked by: HLBenny
 Date: 1-31-90

SOIL MOISTURE DATA SHEET

PROCEDURE NO. ETAL-14 REV. NO. Ø

THERMOMETER NO. 0006 CALIBRATION DUE DATE 2-6-90

REV. NO. 0

CALIBRATION DUE DATE 2-6-90

[illegible]

ALL REQUIRED DATA ARE ACCURATELY AND COMPLETELY RECORDED. THE TEST OPERATOR WAS APPROPRIATELY TRAINED AND TEST PROCEDURES FOLLOWED TO PRODUCE THE ABOVE DATA

TEST OPERATOR: *RG Alexander* DATE *1-29-90*

DATE 1-29-90

62-12121-206



CHAIN OF CUSTODY

Company Contact: J. W. Lindberg Telephone: 6-5005Sample Collected by: R. D. Miller Date: Inclusive dates Time: n/aSample Locations: NW-12Ice Chest No.: n/a Field Logbook Page No.: _____Remarks: Field Logbook No. # WTK-N-306-3Method of Shipment: quit vehicle - hand carry to J. Alexander 2101-M Lab.

Sample Identification

| | |
|---------------------------------|---------------------------------|
| <u>NW-12-1, plastic bag</u> | <u>NW-12-12, S/S liner - 6"</u> |
| <u>NW-12-2, " "</u> | |
| <u>NW-12-3, " "</u> | |
| <u>NW-12-4, " "</u> | |
| <u>NW-12-5, " "</u> | |
| <u>NW-12-6, " "</u> | |
| <u>NW-12-7, " "</u> | |
| <u>NW-12-8, " "</u> | |
| <u>NW-12-9, " "</u> | |
| <u>NW-12-10, " "</u> | |
| <u>NW-12-11, S/S liner - 6"</u> | |

CHAIN OF POSSESSION

Relinquished by: (GAD) R. D. MillerRelinquished by: J. W. Lindberg

Relinquished by: _____

Relinquished by: _____

Received by: J. W. LindbergReceived by: R. G. ALEXANDERReceived by: R. G. Alexander

Received by: _____

Date/Time: Jan 16/01455Date/Time: 1-18-90/0610

Date/Time: _____

Date/Time: _____

9212107



Westinghouse
Hanford Company

SAMPLE ANALYSIS REQUEST

PART I: FIELD SECTION CERCLA, 1100-EM-1, Groundwater Monitoring Well

Collector: Rand Miller Date Sampled: Jan 13-16, 1990 Time: NA hours

Company Contact JW Lindberg Telephone (509) 376-5005

| SAMPLE NUMBER | NUMBER & TYPE OF SAMPLE CONTAINERS | TYPE OF SAMPLE * | ANALYSIS REQUESTED |
|---------------|------------------------------------|------------------|-------------------------------|
| MW-12-1 | 1 plastic bag | Soil | Particle Size, Moisture |
| MW-12-2 | " | " | " " |
| MW-12-3 | " | " | " " |
| MW-12-4 | " | " | " " |
| MW-12-5 | " | " | " " |
| MW-12-6 | " | " | " " |
| MW-12-7 | " | " | " " |
| MW-12-8 | " | " | " " |
| MW-12-9 | " | " | " " |
| MW-12-10 | " | " | " " |
| MW-12-11 | 1 6" Split Spoon Liner | " | Particle Size, Atterberg Lim. |
| MW-12-12 | " | " | Permeability |

Field Information ** Well temporary number MW-12
on the east side of the Horn Rapids Landfill.

Special Handling and/or Storage _____

PART II: LABORATORY SECTION

Received by _____ Title _____ Date _____

Analysis Required _____

* Indicate Whether Sample Is Soil, Sludge, Water, Etc.

** Use Back of Page for Additional Information Relative to Sample Location.

92121108

RADIATION RELEASE

Bldg. MW-12-1 Date 1-13-90
 Released By Bong
 Operational Health Physics
 Remarks _____

54-3000-022 (09/88)

RADIATION RELEASE

Bldg. MW-12-2 Date 1-13-90
 Released By Bong
 Operational Health Physics
 Remarks _____

54-3000-022 (09/88)

RADIATION RELEASE

Bldg. MW-12-3 Date 1-13-90
 Released By Bong
 Operational Health Physics
 Remarks _____

54-3000-022 (09/88)

RADIATION RELEASE

Bldg. MW-12-4 Date 1-13-90
 Released By Bong
 Operational Health Physics
 Remarks _____

54-3000-022 (09/88)

RADIATION RELEASE

Bldg. MW-12-5 Date 1-13-90
 Released By Bong
 Operational Health Physics
 Remarks _____

54-3000-022 (09/88)

RADIATION RELEASE

Bldg. MW-12-6 Date 1-13-90
 Released By Bong
 Operational Health Physics
 Remarks _____

54-3000-022 (09/88)

RADIATION RELEASE

Bldg. MW-12-7 Date 1-15-90
 Released By McClelland
 Operational Health Physics
 Remarks _____

54-3000-022 (09/88)

RADIATION RELEASE

Bldg. MW-12-8 Date 1-15-90
 Released By McClelland
 Operational Health Physics
 Remarks _____

54-3000-022 (09/88)

92121109

TEST REQUEST FORM

Sample/Specimen No. 0-040 Cost Code/Work Order No. ED332

Requested By: Org. 80232 Person J. LINDBERG Date 1-31-89

| Test Requested | No. of Samples | Test Lab Information (Instruction Used) |
|-----------------------|----------------|--|
| <u>SIEVE ANALYSIS</u> | <u>1</u> | <u>ETAL-07</u> |
| <u>HYDROMETER</u> | <u>1</u> | <u>ETAL-07 (IFREQ)</u> |
| <u>MOISTURE</u> | <u>1</u> | <u>ETAL-14</u> |
| <u>N/A</u> | <u>N/A</u> | <u>N/A</u> |

Remarks FIELD SAMPLE
MW-12-9

Received By: R G ALEXANDER Date 1-18-90

Approved By: R G ALEXANDER Date 1-31-90

9212110510

SIEVE ANALYSIS DATA SHEET

Sample ID 0-040

Page 1 of 1

Tested By R.G. ALEXANDER

Date 1-31-90

Procedure ETDL-07 Rev 1

Date Issued 11-15-89

| EQUIPMENT ITEM | CALIBRATION NO. | DATE DUE |
|----------------|-----------------|----------|
| Balance | 3304 | 3-25-90 |
| Thermometer | 0006 | 2-6-90 |
| N/A | N/A | N/A |

Sample Description SANDY GRAVEL

Sieve Time 10 (min)

reduced by ☒ splitting

☒ quartering

☐ stockpile

(B) BEFORE TEST WT. N/A (A) AFTER TEST WT. N/A $\frac{B-A}{B} \times 100 = \frac{N/A}{N/A} \% \text{ LOSS}$

| Sieve ID Number | Sieve Size | Sample Weight | Cumulative Wt. Retained (g) | % Retained | Cumulative % Retained | Cumulative % Pass | % Pass |
|-----------------|------------|---------------|-----------------------------|------------|-----------------------|-------------------|--------|
| N/A | 2 | 4378.14 | 0 | 0 | 0 | 100 | 100 |
| | 1 1/2 | | 607.98 | 13.9 | 13.9 | 86.1 | 86.1 |
| | 1 | | 1512.11 | 34.5 | 34.5 | 65.5 | 65.5 |
| | 3/4 | | 1778.77 | 40.6 | 40.6 | 59.4 | 59.4 |
| | 1/2 | | 2190.73 | 50.0 | 50.0 | 50.0 | 50.0 |
| | 3/8 | | 2392.24 | 54.6 | 54.6 | 45.4 | 45.4 |
| | #4 | | 2776.49 | 63.4 | 63.4 | 36.6 | 36.6 |
| | #10 | 4378.14 | 3140.34 | 71.7 | 71.7 | 28.3 | 28.3 |
| | #40 | 148.53 | 34.59 | 23.3 | 23.3 | 76.7 | 21.7 |
| | #60 | | 61.79 | 41.6 | 41.6 | 58.4 | 16.5 |
| | #100 | | 98.90 | 66.6 | 66.6 | 33.4 | 9.5 |
| | #200 | | 119.67 | 80.6 | 80.6 | 19.4 | 5.5 |

Finess Modules (FM) N/A (See ASTM C 136-83, Section B.2)

MATERIALS FINER THAN NO. 200 SIEVE BY WASHING

C=Percentage of Material Passing a 200 Sieve 19.4 %

D=Original Dry Weight of Sample 148.53g

E=Dry Weight of Sample After Washing/Sieve 119.67g

$C = \frac{(D-E)}{D} \times 100$

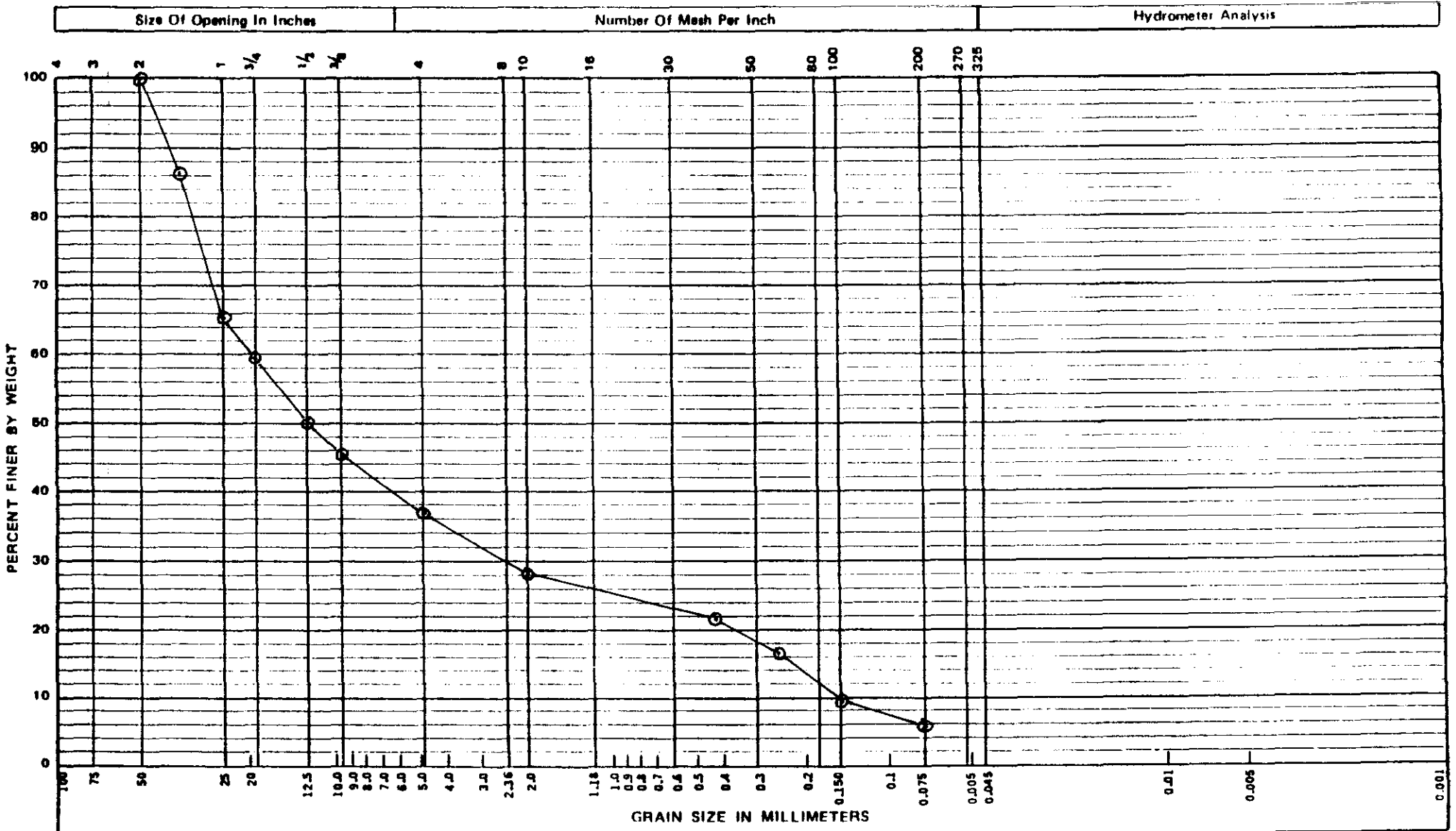
Remarks

WASH FINE GRADING
SMALL FIELD
SAMPLE

ALL DATA ARE ACCURATELY AND COMPLETELY RECORDED. THE TEST OPERATOR WAS TRAINED AND USED CALIBRATED INSTRUMENTS
Checked By HL Benny Date 1-31-90

9 2 1 2 1 1 0 3 1 2

GRAIN SIZE ANALYSIS PLOT

Specimen No 0-040Procedure No ETAL-07Rev 1Date Issued 11-15-89

Sample Description: SANDY GRAVEL
MW-12-9

Plotted by: R.G. ALEXANDER
 Date: 1-31-90

Checked by: _____
 Date: _____

SOIL MOISTURE DATA SHEET

PROCEDURE NO. ETAL-14 REV. NO. Ø

THERMOMETER NO. 0006 CALIBRATION DUE DATE 2-6-90

REV. NO. Ø

CALIBRATION DUE DATE 2-6-90

[illegible]

ALL REQUIRED DATA ARE ACCURATELY AND COMPLETELY RECORDED. THE TEST OPERATOR WAS APPROPRIATELY TRAINED AND TEST PROCEDURES FOLLOWED TO PRODUCE THE ABOVE DATA

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CHAIN OF CUSTODY

Company Contact: J. W. Lindberg Telephone: 6-5005Sample Collected by: R. D. Miller Date: Inclusive dates Time: n/aSample Locations: NW-12Ice Chest No.: n/a Field Logbook Page No.: _____Remarks: Field Logbook No. # NW-N-306-3Method of Shipment: quit vehicle - hand carry to J. Alexander 2101-M Lab

Sample Identification

| | |
|-------------------------------|-------------------------------|
| <u>NW-12-1, plastic bag</u> | <u>NW-12-12, S/S liner-6"</u> |
| <u>NW-12-2, " "</u> | |
| <u>NW-12-3, " "</u> | |
| <u>NW-12-4, " "</u> | |
| <u>NW-12-5, " "</u> | |
| <u>NW-12-6, " "</u> | |
| <u>NW-12-7, " "</u> | |
| <u>NW-12-8, " "</u> | |
| <u>NW-12-9, " "</u> | |
| <u>NW-12-10, " "</u> | |
| <u>NW-12-11, S/S liner-6"</u> | |

CHAIN OF POSSESSION

Relinquished by: (GAD) R.D. MillerRelinquished by: J. W. Lindberg
Relinquished by: J. W. LindbergRelinquished by: _____
_____Received by: J. W. Lindberg
Received by: J. W. LindbergReceived by: R. G. ALEXANDER
Received by: R. G. AlexanderReceived by: _____
_____Date/Time: Jan 16/01 455Date/Time: 1-18-90/0610

Date/Time: _____

Date/Time: 6



Westinghouse
Hanford Company

SAMPLE ANALYSIS REQUEST

PART I: FIELD SECTION CERCLA, 1102-EM-1, Groundwater Monitoring Well

Collector: Rand Miller Date Sampled: Jan 13-16, 1990 Time: NA hours

Company Contact JW Lindberg Telephone (209) 376-5005

| SAMPLE NUMBER | NUMBER & TYPE OF SAMPLE CONTAINERS | TYPE OF SAMPLE * | ANALYSIS REQUESTED |
|---------------|------------------------------------|------------------|-------------------------------|
| MW-12-1 | 1 plastic bag | Soil | Particle Size, Moisture |
| MW-12-2 | " | " | " " |
| MW-12-3 | " | " | " " |
| MW-12-4 | " | " | " " |
| MW-12-5 | " | " | " " |
| MW-12-6 | " | " | " " |
| MW-12-7 | " | " | " " |
| MW-12-8 | " | " | " " |
| MW-12-9 | " | " | " " |
| MW-12-10 | " | " | " " |
| MW-12-11 | 1 6" split spoon liner | " | Particle Size, Atterberg Lim. |
| MW-12-12 | " | " | Permeability |

Field Information ** Well temporary number MW-12
on the east side of the Horn Rapids Landfill.

Special Handling and/or Storage _____

PART II: LABORATORY SECTION

Received by _____ Title _____ Date _____

Analysis Required _____

* Indicate Whether Sample is Soil, Sludge, Water, Etc.

** Use Back of Page for Additional Information Relative to Sample Location.

921211015

RADIATION RELEASE

Bldg. MW-12-1 Date 1-13-90
Released By Bong
Operational Health Physics
Remarks _____

54-3000-022 (09/88)

RADIATION RELEASE

Bldg. MW-12-3 Date 1-13-90
Released By Bong
Operational Health Physics
Remarks _____

54-3000-022 (09/88)

RADIATION RELEASE

Bldg. MW-12-5 Date 1-13-90
Released By Bong
Operational Health Physics
Remarks _____

54-3000-022 (09/88)

RADIATION RELEASE

Bldg. MW-12-7 Date 1-15-90
Released By McClelland
Operational Health Physics
Remarks _____

54-3000-022 (09/88)

RADIATION RELEASE

Bldg. MW-12-9 Date 1-15-90
Released By McClelland
Operational Health Physics
Remarks _____

54-3000-022 (09/88)

RADIATION RELEASE

Bldg. MW-12-2 Date 1-13-90
Released By Bong
Operational Health Physics
Remarks _____

54-3000-022 (09/88)

RADIATION RELEASE

Bldg. MW-12-4 Date 1-13-90
Released By Bong
Operational Health Physics
Remarks _____

54-3000-022 (09/88)

RADIATION RELEASE

Bldg. MW-12-6 Date 1-13-90
Released By Bong
Operational Health Physics
Remarks _____

54-3000-022 (09/88)

RADIATION RELEASE

Bldg. MW-12-8 Date 1-15-90
Released By McClelland
Operational Health Physics
Remarks _____

54-3000-022 (09/88)

RADIATION RELEASE

Bldg. MW-12-10 Date 1-15-90
Released By McClelland
Operational Health Physics
Remarks _____

54-3000-022 (09/88)

921211016

TEST REQUEST FORM

Sample/Specimen No. 0-041 Cost Code/Work Order No. ED 332

Requested By: Org. 80232 Person J. LINDBERG Date 1-31-90

| Test Requested | No. of Samples | Test Lab Information (Instruction Used) |
|-----------------------|----------------|--|
| <u>SIEVE ANALYSIS</u> | <u>1</u> | <u>ETAL-07</u> |
| <u>HYDROMETER</u> | <u>1</u> | <u>ETAL-07 (IF REQ.)</u> |
| <u>MOISTURE</u> | <u>1</u> | <u>ETAL-14</u> |
| <u>N/A</u> | <u>N/A</u> | <u>N/A</u> |

Remarks FIELD SAMPLE
MW-12.10

Received By: RG ALEXANDER Date 1-18-90

Approved By: RG ALEXANDER Date 1-31-90

9212010017

SIEVE ANALYSIS DATA SHEET

Sample ID 0-041

Page 1 of 1

Tested By R. G. ALEXANDER

Date 1-31-90

Procedure ETAL-67

Rev 1

Date Issued 11-15-89

EQUIPMENT ITEM

CALIBRATION NO.

DATE DUE

Balance

3304

3-25-90

Thermometer

0006

2-6-90

N/A

N/A

N/A

Sample Description SANDY GRAVEL

Sieve Time 10 (min)

reduced by ☒ splitting

☒ quartering

☐ stockpile

(B)

(A)

BEFORE TEST WT. N/A AFTER TEST WT. N/A $\frac{B-A}{B} \times 100 = \underline{N/A} \% \text{ LOSS}$

| Sieve ID Number | Sieve Size | Sample Weight | Cumulative Wt. Retained (g) | % Retained | Cumulative % Retained | Cumulative % Pass | % Pass |
|-----------------|--------------|----------------|-----------------------------|-------------|-----------------------|-------------------|-------------|
| <u>N/A</u> | <u>2</u> | <u>4491.12</u> | <u>Ø</u> | <u>Ø</u> | <u>Ø</u> | <u>100</u> | <u>100</u> |
| | <u>1 1/2</u> | | <u>135.88</u> | <u>3.0</u> | <u>3.0</u> | <u>97.0</u> | <u>97.0</u> |
| | <u>1</u> | | <u>479.53</u> | <u>10.7</u> | <u>10.7</u> | <u>89.3</u> | <u>89.3</u> |
| | <u>3/4</u> | | <u>705.32</u> | <u>15.7</u> | <u>15.7</u> | <u>84.3</u> | <u>84.3</u> |
| | <u>1/2</u> | | <u>1273.80</u> | <u>28.4</u> | <u>28.4</u> | <u>71.6</u> | <u>71.6</u> |
| | <u>3/8</u> | | <u>1700.42</u> | <u>37.9</u> | <u>37.9</u> | <u>62.1</u> | <u>62.1</u> |
| | <u>#4</u> | | <u>2685.32</u> | <u>59.8</u> | <u>59.8</u> | <u>40.2</u> | <u>40.2</u> |
| | <u>#10</u> | <u>4491.12</u> | <u>3277.85</u> | <u>73.0</u> | <u>73.0</u> | <u>27.0</u> | <u>27.0</u> |
| | <u>#40</u> | <u>153.37</u> | <u>44.97</u> | <u>29.3</u> | <u>29.3</u> | <u>70.7</u> | <u>19.1</u> |
| | <u>#60</u> | | <u>77.91</u> | <u>50.8</u> | <u>50.8</u> | <u>49.2</u> | <u>13.3</u> |
| | <u>#100</u> | | <u>107.68</u> | <u>70.2</u> | <u>70.2</u> | <u>29.8</u> | <u>8.0</u> |
| | <u>#200</u> | | <u>123.98</u> | <u>80.8</u> | <u>80.8</u> | <u>19.2</u> | <u>5.2</u> |

Finess Modules (FM) N/A (See ASTM C 136-B3, Section 8.2)

MATERIALS FINER THAN NO. 200 SIEVE BY WASHING

C=Percentage of Material Passing a 200 Sieve %

D=Original Dry Weight of Sample 153.57 g

E=Dry Weight of Sample After Washing/Sieve 123.98 g

$C = \frac{D-E}{D} \times 100$

Remarks

WASH FINE GRADING
SMALL FIELD
SAMPLE

ALL DATA ARE ACCURATELY AND COMPLETELY RECORDED. THE TEST OPERATOR WAS TRAINED AND USED CALIBRATED INSTRUMENTS

Checked By HLBenny

Date 1-31-90

HYDROMETER ANALYSIS DATA SHEET

Sample ID 0-041

Page 1 of 1

Tested By HL Benny Date 2-23-90
 Procedure ETAL 07 Rev 1 Date Issued 11-15-89

| EQUIPMENT ITEM | NO. | CALIBRATION DUE DATE |
|--------------------------|-------------|----------------------|
| Hydrometer | <u>1000</u> | <u>2-16-91</u> |
| Balance | <u>3304</u> | <u>3-25-90</u> |
| Thermometer/Thermocouple | <u>2002</u> | <u>2-9-91</u> |

Specific gravity of Sample 2.30 (see 9-080)

% Passing No. 10 Sieve 27.0 (%)

Hygroscopic Correction Factor 0

HYGROSCOPIC MOISTURE CONTENT

Wt. Container + Air Dry Soil NA (g)

Wt. Container + Oven Dry Soil NA (g)

Wt. Container NA (g)

Water Content NA (%)

WEIGHT OF SAMPLE

Wt. Container + Soil NA (g)

Wt. Container NA (g)

Wt. Soil 50.0 (g)

REMARKS

Tube C
Test stopped when readings same
as blank
w = 185.19
Assume "a" = 1.11, K = 0.01447

COMPOSITE CORRECTION

1st Reading 6 at 23.8 °C

2nd Reading NA at NA °C

| Date | Clock time | Elapsed time (min) | Hydrometer reading | Hydrometer with composite correction | Temp. (°C) | Soil in suspension (%) | Particle diameter (mm) |
|---------|------------|--------------------|--------------------|--------------------------------------|------------|------------------------|------------------------|
| 2-23-90 | 1507 | 2.0 | 24 | 18 | 25.0 | 10.8 | 0.036 |
| | 1510 | 5.0 | 12 | 6 | 25.0 | 3.6 | 0.022 |
| | 1520 | 15.0 | 7 | 1 | 25.0 | 0.6 | 0.010 |
| | 1535 | 30.0 | 7 | 1 | 25.0 | 0.6 | 0.007 |
| | 1605 | 60.0 | 7 | 1 | 24.7 | 0.6 | 0.005 |
| ✓ | 1915 | 250.00 | 6 | 0 | 24.4 | 0 | 0 |
| NA | NA | 1,440.0 | NA | NA | NA | NA | NA |

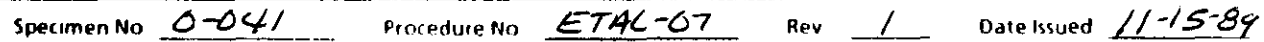
Formulas and Tables used to calculate percent Soil in suspension, particle diameter and hygroscopic correction factor are found in ASTM D422.

ALL REQUIRED DATA ARE ACCURATELY AND COMPLETELY RECORDED. THE TEST OPERATOR WAS APPROPRIATELY TRAINED AND UTILIZED CALIBRATED TEST INSTRUMENTS AS INDICATED ABOVE. APPROVED TEST PROCEDURES WERE FOLLOWED TO PRODUCE THE ABOVE DATA.

Checked By R.G. Alexander

Date 3-5-90

GRAIN SIZE ANALYSIS PLOT



on: SANDY GRAVER
MW-12-10

Date: 1-31-90

Date: 1-31-90

SOIL MOISTURE DATA SHEET

PROCEDURE NO. ETAL-14 REV. NO. Ø

THERMOMETER NO. 0006 CALIBRATION DUE DATE 2-6-90

REV. NO. Ø

CALIBRATION DUE DATE 2-6-90

[illegible]

ALL REQUIRED DATA ARE ACCURATELY AND COMPLETELY RECORDED. THE TEST OPERATOR WAS APPROPRIATELY TRAINED AND TEST PROCEDURES FOLLOWED TO PRODUCE THE ABOVE DATA

TEST OPERATOR: R.G. ALEXANDER DATE 1-31-90

DATE 1-31-90

9212110321



Westinghouse
Hanford Company

CHAIN OF CUSTODY

Company Contact: J. W. Lindberg Telephone: 6-5005

Sample Collected by: R. D. Miller Date: Inclusive dates Time: N/A

Sample Locations: NW-12

Ice Chest No.: n/a Field Logbook Page No.: _____

Remarks: Field Logbook No# NWK-N-306-3

Method of Shipment: quit vehicle-hand carry to J. Alexander 2101-M Lab

Sample Identification

| | |
|-------------------------------|-------------------------------|
| <u>NW-12-1, plastic bag</u> | <u>NW-12-12, 5/s liner-6"</u> |
| <u>NW-12-2, " "</u> | _____ |
| <u>NW-12-3, " "</u> | _____ |
| <u>NW-12-4, " "</u> | _____ |
| <u>NW-12-5, " "</u> | _____ |
| <u>NW-12-6, " "</u> | _____ |
| <u>NW-12-7, " "</u> | _____ |
| <u>NW-12-8, " "</u> | _____ |
| <u>NW-12-9, " "</u> | _____ |
| <u>NW-12-10, " "</u> | _____ |
| <u>NW-12-11, 5/s liner-6"</u> | _____ |

CHAIN OF POSSESSION

Relinquished by: (GAD) R.D. Miller

Relinquished by: J. W. Lindberg

Relinquished by: _____

Relinquished by: _____

Received by: J. W. Lindberg

Received by: R. G. ALEXANDER

Received by: R. G. Alexander

Received by: _____

Date/Time: Jan 16/01/55

Date/Time: 1-18-90/0610

Date/Time: _____

Date/Time: _____



Westinghouse
Hanford Company

SAMPLE ANALYSIS REQUEST

PART I: FIELD SECTION CERCLA, 1100-EM-1, Groundwater Monitoring Well

Collector: Rand Miller Date Sampled: Jan 13-16, 1990 Time: NA hours

Company Contact JW Lindberg Telephone (209) 376-5005

| SAMPLE NUMBER | NUMBER & TYPE OF SAMPLE CONTAINERS | TYPE OF SAMPLE * | ANALYSIS REQUESTED |
|---------------|------------------------------------|------------------|-------------------------------|
| MW-12-1 | 1 plastic bag | Soil | Particle Size, Moisture |
| MW-12-2 | " | " | " " |
| MW-12-3 | " | " | " " |
| MW-12-4 | " | " | " " |
| MW-12-5 | " | " | " " |
| MW-12-6 | " | " | " " |
| MW-12-7 | " | " | " " |
| MW-12-8 | " | " | " " |
| MW-12-9 | " | " | " " |
| MW-12-10 | " | " | " " |
| MW-12-11 | 1 6" Split Spoon Liner | " | Particle Size, Atterberg Lim. |
| MW-12-12 | " | " | Permeability |

Field Information ** Well temporary number MW-12
on the east side of the Horn Rapids Landfill.

Special Handling and/or Storage _____

PART II: LABORATORY SECTION

Received by _____ Title _____ Date _____

Analysis Required _____

* Indicate Whether Sample Is Soil, Sludge, Water, Etc.

** Use Back of Page for Additional Information Relative to Sample Location.

921211033

RADIATION RELEASE

Bldg. MW-12-1 Date 1-13-90
 Released By Bong
 Operational Health Physics
 Remarks _____

54-3000-022 (09/88)

RADIATION RELEASE

Bldg. MW-12-2 Date 1-13-90
 Released By Bong
 Operational Health Physics
 Remarks _____

54-3000-022 (09/88)

RADIATION RELEASE

Bldg. MW-12-3 Date 1-13-90
 Released By Bong
 Operational Health Physics
 Remarks _____

54-3000-022 (09/88)

RADIATION RELEASE

Bldg. MW-12-4 Date 1-13-90
 Released By Bong
 Operational Health Physics
 Remarks _____

54-3000-022 (09/88)

RADIATION RELEASE

Bldg. MW-12-5 Date 1-13-90
 Released By Bong
 Operational Health Physics
 Remarks _____

54-3000-022 (09/88)

RADIATION RELEASE

Bldg. MW-12-6 Date 1-13-90
 Released By Bong
 Operational Health Physics
 Remarks _____

54-3000-022 (09/88)

RADIATION RELEASE

Bldg. MW-12-7 Date 1-15-90
 Released By McClelland
 Operational Health Physics
 Remarks 1 Sample

54-3000-022 (09/88)

RADIATION RELEASE

Bldg. MW-12-8 Date 1-15-90
 Released By McClelland
 Operational Health Physics
 Remarks 1 Sample

54-3000-022 (09/88)

RADIATION RELEASE

Bldg. MW-12-9 Date 1-15-90
 Released By McClelland
 Operational Health Physics
 Remarks 1 Sample

54-3000-022 (09/88)

RADIATION RELEASE

Bldg. MW-12-10 Date 1-15-90
 Released By McClelland
 Operational Health Physics
 Remarks 1 Sample

54-3000-022 (09/88)

92121024

PLASTIC INDEX SOILS DATA SHEET

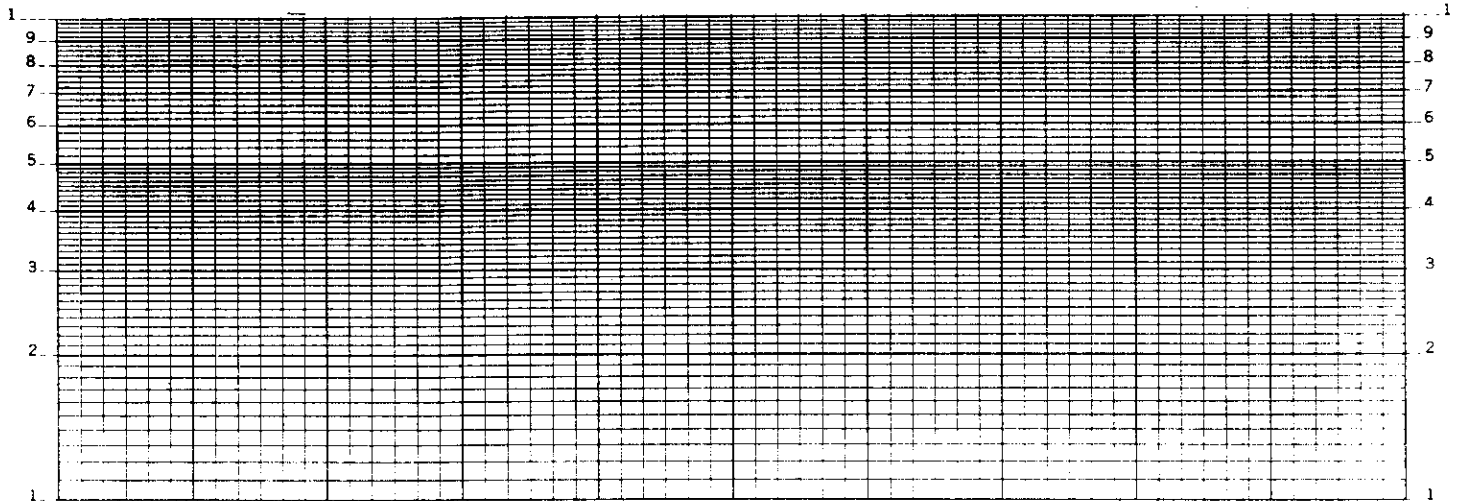
Sample No. 0-041

Page 1 of 2

Test Operator HL Benny

Date 4/9/90

Thermometer No. 0007 Calibration Date 8-16-90



WATER CONTENT (Wn)

Liquid Limit (LL) NA Graph

Plastic Limit (PL) NA (Avg.)

Liquid Limit (LL) NA One Point

Moisture (PL) NA % NA %

Moisture (LL) NA %

Plastic Index (PI)* NA

$$*PI = LL - PL$$

Remarks Non-Plastic (Volcanic Ash)

ALL DATA ARE ACCURATELY AND COMPLETELY RECORDED.
THE TEST OPERATOR WAS APPROPRIATELY TRAINED AND UTILIZED
CALIBRATED TEST INSTRUMENTS. APPROVED TEST PROCEDURES WERE
FOLLOWED TO PRODUCE THIS DATA.

Sample is not cohesive. Liquid limit can't be performed.

TEST REQUEST FORM

Sample/Specimen No. D-042 Cost Code/Work Order No. ED 332

Requested By: Org. 80232 Person J. LINDBERG Date 1-31-90

| Test Requested | No. of Samples | Test Lab Information (Instruction Used) |
|-------------------------|----------------|---|
| <u>SIEVE ANALYSIS</u> | <u>1</u> | <u>ETAL-07</u> |
| <u>HYDROMETER</u> | <u>1</u> | <u>ETAL-07 (IF REQ)</u> |
| <u>ATTERBERG Limits</u> | <u>1</u> | <u>ETAL-18</u> |
| <u>N/A</u> | <u>N/A</u> | <u>N/A</u> |

Remarks FIELD SAMPLE
MW-12-11

Received By: RG Alexander Date 1-18-90

Approved By: RG Alexander Date 1-31-90

9212110026

SIEVE ANALYSIS DATA SHEET

Sample ID 0-042

Page 1 of 1

Tested By R. G. ALEXANDER

Date 1-31-90

Procedure ETAL-07

Rev 1Rev 1

Date Issued 11-15-89

EQUIPMENT ITEM

CALIBRATION NO.

DATE DUE

Balance

3304

3-25-90

Thermometer

0006

2-6-90

N/A

n/a

N/A

Sample Description SILT

Sieve Time 10 (min)

reduced by ~~X~~ splitting

☐ quartering

☐ stockpile

(B)

(A)

BEFORE TEST WT. ^(B) 1.1 AFTER TEST WT. ^(A) 1.1 $\frac{B-A}{B} \times 100 = \underline{0}$ % LOSS

| Sieve ID Number | Sieve Size | Sample Weight | Cumulative Wt. Retained (g) | % Retained | Cumulative % Retained | Cumulative % Pass | % Pass |
|-----------------|------------|---------------|-----------------------------|------------|-----------------------|-------------------|--------|
| N/A | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | #4 | 111.50 | Ø | Ø | Ø | 100 | 100 |
| | #10 | | 1.54 | 1.4 | 1.4 | 98.6 | 98.6 |
| | #40 | | 10.14 | 9.1 | 9.1 | 90.9 | 90.9 |
| | #60 | | 12.96 | 11.6 | 11.6 | 88.4 | 88.4 |
| | #100 | | 15.54 | 13.9 | 13.9 | 84.1 | 84.1 |
| | #200 | | 27.62 | 26.6 | 26.6 | 73.4 | 73.4 |

Finess Modules (FM) N/A (See ASTM C 136-83, Section 8.2)

MATERIALS FINER THAN NO. 200 SIEVE BY WASHING

C=Percentage of Material Passing a 200 Sieve 73.4 %

D=Original Dry Weight of Sample 111.50 g

E=Dry Weight of Sample After Washing/Sieve 29.62.

$$C = \langle (D-E)/D \rangle \times 100$$

Remarks

WASH GRADING

SMALL FIELD

SAMPLE

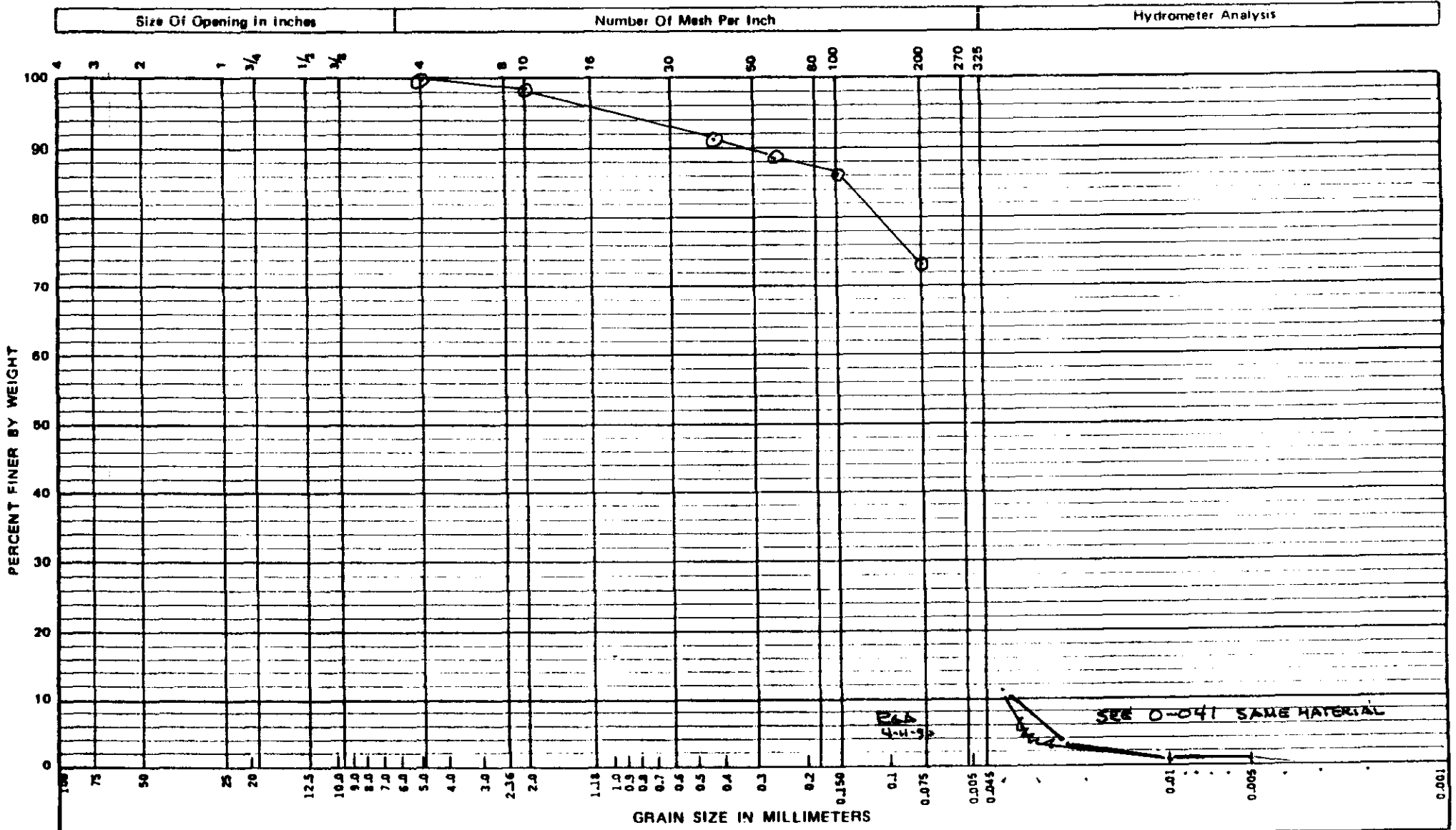
ALL DATA ARE ACCURATELY AND COMPLETELY RECORDED. THE TEST OPERATOR WAS TRAINED AND USED CALIBRATED INSTRUMENTS

Checked By HL Benny

Date 1-29-90

9 2 1 2 1 0 2 8

GRAIN SIZE ANALYSIS PLOT

Specimen No 0-042Procedure No ETAL-07Rev 1Date Issued 11-15-89

Sample Description:

SILT
MW-12-11Plotted by: RG. ALEXANDERDate: 1-31-90Checked by: HL BENNYDate: 1-31-90

SOIL MOISTURE DATA SHEET

PROCEDURE NO. ETAL-14 REV. NO. 0

THERMOMETER NO. 0006 CALIBRATION DUE DATE 2-6-90

REV. NO. 0

CALIBRATION DUE DATE 2-6-90

[illegible]

ALL REQUIRED DATA ARE ACCURATELY AND COMPLETELY RECORDED. THE TEST OPERATOR WAS APPROPRIATELY TRAINED AND TEST PROCEDURES FOLLOWED TO PRODUCE THE ABOVE DATA

TEST OPERATOR: *R.G. ALEXANDER* DATE *1-31-90*

DATE 1-31-90



Westinghouse
Hanford Company

CHAIN OF CUSTODY

Company Contact: J. W. Lindberg Telephone: 6-5005

Sample Collected by: R. D. Miller Date: Inclusive dates Time: NA

Sample Locations: NW-12

Ice Chest No.: n/a Field Logbook Page No.: _____

Remarks: Field Logbook No. WTK-N-306-3

Method of Shipment: quit vehicle - hand carry to J. Alexander 2101-N Lab

Sample Identification

| Sample Identification | Sample Identification |
|---------------------------------|---------------------------------|
| <u>NW-12-1, plastic bag</u> | <u>NW-12-12, S/S liner - 6"</u> |
| <u>NW-12-2, " "</u> | |
| <u>NW-12-3, " "</u> | |
| <u>NW-12-4, " "</u> | |
| <u>NW-12-5, " "</u> | |
| <u>NW-12-6, " "</u> | |
| <u>NW-12-7, " "</u> | |
| <u>NW-12-8, " "</u> | |
| <u>NW-12-9, " "</u> | |
| <u>NW-12-10, " "</u> | |
| <u>NW-12-11, S/S liner - 6"</u> | |

CHAIN OF POSSESSION

Relinquished by: (GAI) R. D. Miller

Relinquished by: J. W. Lindberg

Relinquished by: _____

Relinquished by: _____

Received by: J. W. Lindberg

Received by: R. G. ALEXANDER

Received by: R. G. Alexander

Received by: _____

Date/Time: Jun 16 90 1455

Date/Time: 1-18-90/0610

Date/Time: _____

Date/Time: _____

921211030



Westinghouse
Hanford Company

SAMPLE ANALYSIS REQUEST

PART I: FIELD SECTION CERCLA, 1100-EM-1, Groundwater Monitoring Well

Collector: Rand Miller Date Sampled: Jan 13-16, 1990 Time: NA hours

Company Contact JW Lindberg Telephone (209) 376-5005

| SAMPLE NUMBER | NUMBER & TYPE OF SAMPLE CONTAINERS | TYPE OF SAMPLE* | ANALYSIS REQUESTED |
|---------------|------------------------------------|-----------------|-------------------------------|
| MW-12-1 | 1 plastic bag | Soil | Particle Size, Moisture |
| MW-12-2 | " | " | " " |
| MW-12-3 | " | " | " " |
| MW-12-4 | " | " | " " |
| MW-12-5 | " | " | " " |
| MW-12-6 | " | " | " " |
| MW-12-7 | " | " | " " |
| MW-12-8 | " | " | " " |
| MW-12-9 | " | " | " " |
| MW-12-10 | " | " | " " |
| MW-12-11 | 1 6" Split Spoon Liner | " | Particle Size, Atterberg Lim. |
| MW-12-12 | " | " | Permeability |

Field Information** Well temporary number MW-12
on the east side of the Horn Rapids Landfill.

Special Handling and/or Storage _____

PART II: LABORATORY SECTION

Received by _____ Title _____ Date _____

Analysis Required _____

* Indicate Whether Sample is Soil, Sludge, Water, Etc.

** Use Back of Page for Additional Information Relative to Sample Location.

RADIATION RELEASE

Bldg. MW-12-11 Date 1-16-90
 Released By M. Capelano
 Operational Health Physics

Remarks 1 silt sample (ash)
 54-3000-022 (09/88)

RADIATION RELEASE

Bldg. MW-12 Date 1-16-90
 Released By M. Capelano
 Operational Health Physics

Remarks 1 silt sample (ash)
 54-3000-022 (09/88)

9212110432

TEST REQUEST FORM

Sample/Specimen No. 0-043 Cost Code/Work Order No. ED 332

Requested By: Org. 80232 Person J. LINDBERG Date 1-31-90

| Test Requested | No. of Samples | Test Lab Information (Instruction Used) |
|-------------------------------|----------------|---|
| <u>HYDRAULIC CONDUCTIVITY</u> | <u>1</u> | <u>ETDL-09</u> |
| <u>N/A</u> | <u>N/A</u> | <u>N/A</u> |
| <u>N/A</u> | <u>N/A</u> | <u>N/A</u> |
| <u>N/A</u> | <u>N/A</u> | <u>N/A</u> |

Remarks FIELD SAMPLE
MW -12-12

Received By: R.G. ALEXANDER Date 1-10-90

Approved By: R.G. ALEXANDER Date 1-31-90

9212033

HYDRAULIC CONDUCTIVITY OF SOILS DATA SHEET

Sample No. 0-043Page 1 of 5Test Operator R.G. Alexander Date 1-31-90

| EQUIPMENT ITEM | NO. | DATE DUE |
|------------------------|------|----------|
| Balance | 3304 | 3-25-90 |
| Oven Thermometer | 6006 | 2-6-90 |
| Thermometer | N/A | N/A |
| Thermocouple | | |
| Temperature Controller | | |
| Pressure Gauge | | |
| Pressure Transducer | | |
| Pressure Transducer | | |
| Back Pressure Gauge | | |
| Pressure Transducer | | |
| Pressure Transducer | | |
| Calipers | 5623 | 8-16-90 |
| Load Frame | N/A | N/A |
| Data Logger | | |
| N/A | | |
| N/A | | |
| N/A | | |

☐ Immediate (User) Calibration Performed. (Documentation To Be Attached)

Sample Preparation

PARTICLE SIZE
(Sieve Mesh Range)

| | | |
|-----|----|-----|
| N/A | To | N/A |
| | To | |
| | To | |
| | To | |
| | To | |
| | To | |
| | To | |

OTHER COMPONENTS

| |
|-----|
| N/A |
| |
| |

WEIGHT

| | |
|-------|-------|
| N/A | % |
| | % |
| | % |
| | % |
| | % |
| | % |
| | % |
| Total | 100 % |

| | |
|-------|-------|
| N/A | % |
| | % |
| | % |
| Total | 100 % |

ALL REQUIRED DATA ARE ACCURATELY AND COMPLETELY RECORDED. THE TEST OPERATOR WAS APPROPRIATELY TRAINED AND UTILIZED CALIBRATED TEST INSTRUMENTS AS INDICATED ABOVE. APPROVED TEST PROCEDURES WERE FOLLOWED TO PRODUCE THE ABOVE DATA.

Checked By HC BennyDate 2-13-90

SAMPLE PREPARATION

Determine Weight of Samples in Container

| | |
|------------------------------|---------|
| Container No. | #6 |
| Wt. of Sample + Container, g | 2487.54 |
| Wt. of Container, g | 588.48 |
| Wt. of Sample, g | 1899.06 |

Determine the Water Content of the "Air Dry" Sample

| | |
|-------------------------------------|---------|
| Container No. | 6 |
| Wt. Container & Wet Soil (A), g | 2487.54 |
| Wt. Container & Dry Soil (B), g | 1912.96 |
| Wt. of Water, g | 574.58 |
| Wt. of Container (C), g | 588.48 |
| Wt. of Dry Soil, W _s , g | 1324.48 |
| Water Content (W), % | 43.38 |

$$W = \left(\frac{A - B}{B - C} \right) 100$$

| SAMPLE COMPONENT | SPECIFIC GRAVITY, G | LABORATORY NOTEBOOK DATA LOCATION |
|------------------|---------------------|-----------------------------------|
| N/A | N/A | N/A |
| N/A | N/A | N/A |
| N/A | N/A | N/A |

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Checked By HL BerryDate 2-13-90 HLB
2-13-87 2-13-90

SAMPLE COMPACTION

Compaction Method Static N/A Tamping N/A

| | | | | | |
|--|--|---------|-----|----|-----|
| <div>STATIC</div> <div>or</div> <div>TAMPING</div> | Load Applied, g/ Layer length, cm | Layer 1 | N/A | 11 | N/A |
| | | 2 | | 12 | |
| | No. Tamps per Layer/ Layer Length, cm | 3 | | 13 | |
| | | 4 | | 14 | |
| | | 5 | | 15 | |
| | | 6 | | 16 | |
| | | 7 | | 17 | |
| | | 8 | | 18 | |
| | | 9 | | 19 | |
| | | 10 | ↓ | 20 | ↓ |

Total No. of Layers N/AINTACT SAMPLE IN 4" x 6"
SS TUBE

| | |
|---|---------|
| Tamper Foot Diameter, cm | N/A |
| Tamper Applied Load, g | N/A |
| Sample Diameter, (d), cm | 9.78 |
| Sample Length, (L), cm | 15.22 |
| Sample Mold or Permeameter Weight & Compacted Sample, g | 2496.87 |
| Sample Mold or Permeameter Weight, g | 594.47 |
| Weight of Compacted Sample, (E), g | 1902.40 |
| Weight of Container & Uncompacted Wet Sample, (A), g | 2487.54 |
| Weight of Container & Uncompacted Dry Sample, (B), g | 1912.96 |
| Weight of Water, g | 574.58 |
| Weight of Container, (C), g | 588.48 |
| Weight of Dry Soil, (WS), g | 1324.48 |
| Water Content, % | 43.38 |
| Compacted Bulk Density of Sample, (γ_m), g/cc | 1.66 |
| Compacted Sample Dry Density, (γ_d), g/cc | 1.16 |

$$\gamma_m = \frac{E}{(\pi) (d/2)^2 (L)}$$

$$\gamma_d = \left(\frac{\gamma_m}{W + 100} \right) 100$$

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Checked By HL BennyDate 2-13-90

HYDRAULIC CONDUCTIVITY DATA SHEET

Sample ID. 0-043Page 4 of 5Procedure No. ETAL-09Date Issued 12-1-89

| DATE Year <u>90</u> (Mo/Day) | TIME | | | VOLUME DETERMINANTS | | | | | | | Operator Initials |
|------------------------------------|-----------------------------|---------------------------|-----------------------------|--------------------------|-------------------|------------------------------|---|------------------------|--|--|----------------------|
| | System Down (Hr: Min) | System Up (Hr: Min) | Time Change (Hr: Min) | Effluent Temp (°C) | Weight (±0.1g) | Container Tare (±0.1g) | Container Tare & Ef- fluent (±0.1g) | System Temp (°C) | Pressure Pore H ₂ O (cm H ₂ O) | Pressure Back H ₂ O (psi) | |
| 2-1 | — | 1000 | — | — | — | 150.46 | — | — | 191.3 | N/A | RGA |
| 2-1 | 1400 | STOP | 4:00 | 22 | 150.89 | 150.46 | 301.35 | 22 | 191.3 | N/A | RGA |
| 2-2 | — | 1000 | — | — | — | 150.46 | — | — | 191.3 | N/A | RGA |
| 2-2 | 1330 | STOP | 3:30 | 22 | 127.46 | 150.46 | 277.92 | 22 | 191.3 | N/A | RGA |
| 2-6 | — | 0930 | — | — | — | 150.46 | — | — | 191.3 | N/A | RGA |
| 2-6 | 1430 | STOP | 5:00 | 22 | 306.13 | 150.46 | 456.59 | 22 | 191.3 | N/A | RGA |
| 2-7 | — | 0730 | — | — | — | 150.46 | — | — | 191.3 | N/A | RGA |
| 2-7 | 1630 | STOP | 9:00 | 22 | 509.10 | 150.46 | 659.56 | 22 | 191.3 | N/A | RGA |
| 2-8 | — | 0800 | — | — | — | 150.46 | 461.38 | — | 191.3 | N/A | RGA |
| 2-8 | 1400 | 1415 | 6:00 | 22 | 316.92 | 150.46 | 461.38 | 22 | 191.3 | N/A | RGA |
| 2-9 | 11:15 | 11:20 | 21:00 | 22 | 1010.01 | 267.36 | 1277.37 | 22 | 191.3 | N/A | RGA |
| 2-10 | 1120 | 1125 | 24:00 | 22 | 931.78 926.48 | 267.36 | 1199.14 | 22 | 191.3 | N/A | RGA |
| 2-12 | 0725 | 0730 | 44:00 | 21 | 1510.80 | 199.56 | 2310.36 | 21 | 191.3 | N/A | RGA |
| 2-12 | 1630 | 1635 | 9:00 | 22 | 463.03 | 267.36 | 730.39 | 22 | 191.3 | N/A | RGA |
| 2-13 | 0735 | STOP | 15:00 | 22 | 937.49 937.49 | 267.36 | 1204.85 | 22 | 191.3 | N/A | RGA |
| 2-13 | STOP | TEST | — | — | — | — | — | — | — | — | RGA |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
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Checked By HL BennyDate 2-13-90

HYDRAULIC CONDUCTIVITY DATA SHEET

Sample ID 0-043

Page 5 of 5

Procedure No. ETAL-09

Date Issued 12-1-89

[illegible]

ALL REQUIRED DATA ARE ACCURATELY AND COMPLETELY RECORDED. THE TEST OPERATOR WAS APPROPRIATELY TRAINED AND UTILIZED CALIBRATED TEST INSTRUMENTS AS INDICATED ABOVE. APPROVED TEST PROCEDURES WERE FOLLOWED TO PRODUCE THE ABOVE DATA.

Checked By HL Benny Date 2-13-90



Westinghouse
Hanford Company

CHAIN OF CUSTODY

Company Contact: J. W. Lindberg Telephone: 6-5005

Sample Collected by: R. D. Miller Date: Inclusive dates Time: N/A

Sample Locations: NW-12

Ice Chest No.: n/a Field Logbook Page No.: _____

Remarks: Field Logbook No. # NWK-N-300-3

Method of Shipment: govt vehicle - hand carry to J. Alexander 2101-M Lab

Sample Identification

| | |
|---------------------------------|---------------------------------|
| <u>NW-12-1, plastic bag</u> | <u>NW-12-12, S/S liner - 6"</u> |
| <u>NW-12-2, " "</u> | _____ |
| <u>NW-12-3, " "</u> | _____ |
| <u>NW-12-4, " "</u> | _____ |
| <u>NW-12-5, " "</u> | _____ |
| <u>NW-12-6, " "</u> | _____ |
| <u>NW-12-7, " "</u> | _____ |
| <u>NW-12-8, " "</u> | _____ |
| <u>NW-12-9, " "</u> | _____ |
| <u>NW-12-10, " "</u> | _____ |
| <u>NW-12-11, S/S liner - 6"</u> | _____ |

CHAIN OF POSSESSION

Relinquished by: (GAI) R.D. Miller

Relinquished by: J.W. Lindberg
Relinquished by: J.W. Lindberg

Received by: J.W. Lindberg

Received by: R.G. ALEXANDER
Received by: R.G. Alexander

Date/Time: Jan 16/01455

Date/Time: 1-18-90/0610
Date/Time: _____

Relinquished by: _____

Received by: _____

Date/Time: 8

92121039



Westinghouse
Hanford Company

SAMPLE ANALYSIS REQUEST

PART I: FIELD SECTION CERCLA 1100-EM-1, Groundwater Monitoring Well

Collector: Rand Miller Date Sampled: Jan 13-16, 1990 Time: NA hours

Company Contact JW Lindberg Telephone (209) 376-5005

| SAMPLE NUMBER | NUMBER & TYPE OF SAMPLE CONTAINERS | TYPE OF SAMPLE* | ANALYSIS REQUESTED |
|---------------|------------------------------------|-----------------|-------------------------------|
| MW-12-1 | 1 plastic bag | Soil | Particle Size, Moisture |
| MW-12-2 | " | " | " " |
| MW-12-3 | " | " | " " |
| MW-12-4 | " | " | " " |
| MW-12-5 | " | " | " " |
| MW-12-6 | " | " | " " |
| MW-12-7 | " | " | " " |
| MW-12-8 | " | " | " " |
| MW-12-9 | " | " | " " |
| MW-12-10 | " | " | " " |
| MW-12-11 | 1 6" split spoon liner | " | Particle Size, Atterberg Lim. |
| MW-12-12 | " | " | Permeability |

Field Information** Well temporary number MW-12
on the east side of the Horn Rapids Landfill.

Special Handling and/or Storage _____

PART II: LABORATORY SECTION

Received by _____ Title _____ Date _____

Analysis Required _____

* Indicate Whether Sample is Soil, Sludge, Water, Etc.

** Use Back of Page for Additional Information Relative to Sample Location.

9212110340

RADIATION RELEASE

Bldg. MW-12-11 Date 1-16-90
 Released By M. Copeland
 Operational Health Physics

Remarks 1 silt sample (ash)
 54-3000-022 (09/88)

RADIATION RELEASE

Bldg. MW-12 Date 1-16-90
 Released By M. Copeland
 Operational Health Physics

Remarks 1 silt sample (ash)
 54-3000-022 (09/88)

9212110341